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# The Australian Apple Review

The Independent Magazine

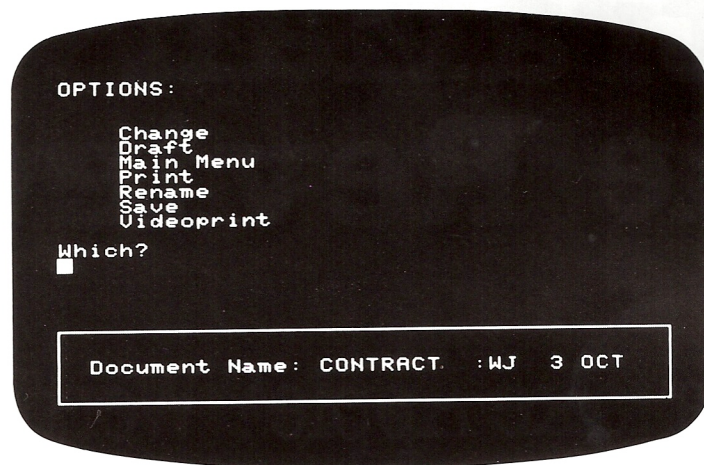
October Vol. 1 No. 1 \$3

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# The Australian Apple Review

The Independent Magazine October Vol. 1 No. 1 \$3

FIRST ISSUE

How good is a fake Apple? Word Processors —Australia versus the world The Olympia ES100 printer-typewriter Top Ten Program Know your Apple The Vision 128K RAM card Buglettes The Auto-Ice Printer Interface News from Apple Adventurer's Corner Crisis Mountain The Great Apple Game Challenge The Worm in the Apple Dealers How good is a fake Apple? Word Processors —Australia versus the world The Olympia ES100 printer-typewriter Top Ten Program Know your Apple The Vision 128K RAM card Buglettes The Auto-Ice Printer Interface News from Apple Adventurer's Corner Crisis Mountain The Great Apple Game

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# UTILITIES APPLE COPY II PLUS

The most sophisticated Bit copy Program is now available in Australia! It handles synchronized tracks, half tracks, nibble counting, bit insertion and other protection schemes. It also includes a comprehensive discussion of disk format and protection techniques, and instructions on how to back up hundreds of popular programs, from Advanced Visicalc to Zork.

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## EDITORIAL

Welcome to the first issue of "The Australian Apple Review". This will be a magazine by and for users of Apple computers in this country. As well as we can estimate, there are over 20,000 Apple computers in Australia today, easily enough to support a magazine.

Our decision to launch the magazine was not taken lightly. We had been looking at the possibility for some time, but the catalyst which brought about the decision was the opening of Apple in Australia. The time, like the Apple, is ripe.

Despite the fact that we have the friendliest relations with Apple — and specifically with David Roman who has given us tremendous support and encouragement — **we are not an official Apple magazine.**

It is most important that we get this point across, otherwise readers will be under the impression that when we talk about Apple products it will be as a public relations exercise. This is not the case. We will write about the Apple and its products as we see them. If they are ill conceived or hastily released (as the Apple III was) we shall say so. If there are worms in the Apple we shall have no hesitation in digging them out.

But in fairness we should say that the editorial staff of this magazine has had a love affair with the Apple — and indeed with all microcomputers — which has been constant, on our side at least.

In this issue we look at word processors in some detail. That is because word processors are to this company a vital lifeline. Over the past few years we have used a large number of Apple word processors — from the Applewriter I onwards. It will be seen from our reviews that we favour Zardax, an Australian program which has been in a state of continual improvement since we first started using it. And this, we think, shows our lack of editorial bias, because a senior member of our editorial staff has just finished writing a new handbook for Sandy's Word Processor for the Apple IIe, a word processing system which we also review in this issue.



We also have a special relationship with the rotund Harry Harper who produced the Vision-80 and has now produced a 128K RAM board which we review in this issue. Harry may not necessarily like the review, but editorial integrity comes before mateship.

We also doubt whether the legal department of Apple Inc. in America will leap up and down with joy regarding our article about fake Apples. We point the finger of blame firmly in their direction, and look forward to some form of reply.

This magazine has been written on Apples and the disks then formatted for typesetting — a major use for typesetting which has not yet got into its stride in Australia.

Every member of the staff knows Apples intimately, plays with them, works with them, writes with them.

We will be concentrating on areas of interest to all, or a majority, of readers. Obviously some items will interest only a few, but these will be kept to a minimum. A magazine exists to serve its readers, so the best way for us to determine what we will include is for you to tell us what you want. At all times we will welcome criticism, suggestions and advice. This is your magazine.

We have immensely enjoyed producing this first issue. We hope that you will get the same enjoyment from reading it.

**Graeme Philipson**





### Fighting the fakes on two continents

Apple Inc has been awarded a preliminary injunction against a Los Angeles distributor of one of the copies of the Apple II computer being sold in the US. A judge of the US District Court in California enjoined Formula International, distributor of the "Pineapple" computer, from copying or selling any of Apple's copyrighted software in the computer's memory or on disk, specifically the Autostart ROM, Applesoft, DOS 3.3 and Integer BASIC.

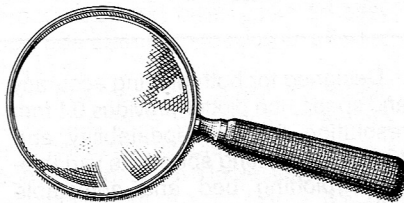
The judge concluded that US copyright statutes cover programs stored in ROM, and said that Congress intended to include Operating Systems such as DOS under the protection granted by the copyright laws.

In a similar case between Apple and the Franklin Computer Corporation now pending in Philadelphia, a District Court judge found that the intent of Congress is unclear on the computer software protection granted by US

copyright laws.

Meanwhile Apple Australia have been granted a court order prohibiting Newcastle microcomputer dealer Microeducational from selling the "Golden II" and "Wombat" computers, which contain substantial amounts of Apple software in their ROMs. Commenting on the order, David Strong of Apple Australia said "We will continue our efforts to prevent the public being misled by Apple 'look alikes' which often do not have the same warranty protection as the genuine article. While we support suppliers of Apple-compatible products, we will continue to take whatever steps are necessary against products which infringe our copyright."

(See "Fake Apples" in this issue)



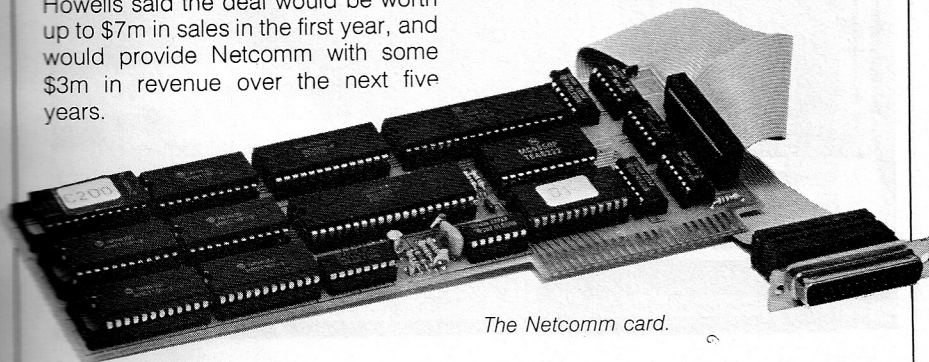
### Netcomm and Apple

The small Australian company Netcomm has signed an agreement with Apple Computer Inc in the US giving Apple the worldwide marketing and distribution rights for the Netcomm communications interface card. The Netcomm card, which was unveiled at the Australian Computer Conference last year, enables the Apple computer to communicate with most IBM mainframes.

Announcing the agreement, Netcomm managing director Chris Howells said the deal would be worth up to \$7m in sales in the first year, and would provide Netcomm with some \$3m in revenue over the next five years.

Netcomm cards are currently available for the Apple II and IIe and Apple III computers, at a cost of around \$700. Netcomm are working on other protocols which will allow a direct interface with all major mainframes and virtually any serial protocol. It complements Apple's local area networking facility, Applenet, which was announced earlier this year.

The agreement represents a major triumph for Netcomm, which was competing against 19 American contenders for the contract.



The Netcomm card.

### Apple and Control Data

Apple Computer Australia are making arrangements for the appointment of Control Data Australia as its third-party maintenance organisation in Australia. The agreement will result in users having access to a nation-wide on-site maintenance service.

Control Data will install and maintain Apple II, Apple II and Lisa computers and peripherals, including printers and video monitors. The on-site support offered by Control Data will complement Apple's current dealer maintenance service.

"This agreement will have a number of advantages for Apple users", Apple Australia's General Manager, David Strong, said in a joint announcement with Control Data.

"On-site maintenance has never been available for Apple computers on a national basis before. Its availability will now be ideal for the professional user who needs to get full productivity out of his installation and cannot afford to have his computer taken away for service, as well as for those in high-security areas."

### Apple introduce consumer credit card

The first manufacturer-sponsored credit card in the retail computer industry has been announced in the US by General Electric Credit Corporation (GECC) and Apple Computer. The card is the centrepiece of a new consumer credit financing program exclusively for US buyers of Apple Personal Computers and compatible hardware and software.

The Apple card will enable customers to purchase Apple computers and system components without drawing on other lines of credit. It is an alternative or complement to common bank credit cards, which may have credit limits inadequate to finance a computer with desirable system components.

Apple Australia have no plans to introduce the credit card system in Australia.



## Apple Education Centre

In September Apple Australia are opening an Education Centre within their premises at North Ryde. The centre will be used to run a series of free introductory courses for parents and teachers, including talks on the components and functions of Apple computers.

By the end of the year Apple hope to involve software publishers in sessions where dealers, teachers and parents can view available software before committing themselves to a purchase.



## A new monitor for the Apple II

Apple has announced a new monochrome video display designed to blend aesthetically with the Apple II.

The new monitor features superior

*The new Apple monitor.*



resolution for 80-column text and graphics display, an anti-reflective, high contrast screen, and a tilt mechanism for adjusting the screen's angle.

The monitor's 12-inch screen displays up to twenty-four 80-character lines of text, and high-resolution graphics in P31 green phosphor, a colour that minimises eye strain. The monitor's tilt mechanism and anti-reflective high contrast screen also help to reduce eye fatigue.

The monitor II can be used with any Apple II, Apple II Plus or Apple IIe computer. Every Apple IIe computer comes with a video cable that allows the monitor to be easily connected to the computer's back panel. Video cables that were provided with Apple II and Apple II Plus computers also work with the monitor.

## New multi-colour plotter

Apple Computer Australia launched a new multi-colour plotter compatible with its full range of personal computers at the 10th Australian Computer Conference in Melbourne in September.

The Apple Colour Plotter, which produces presentation quality graphs and charts on either paper or overhead transparencies, is priced at \$1,295, making it one of the most advanced plotters available at that price.

The plotter is compatible with Apple Business Graphics and many other software programs which utilise the high-resolution multi-colour graphs capabilities of the Apple II, II Plus, IIe and Apple III.

"The Apple Colour Plotter allows the user to create quality printouts of charts and graphs for any type of business situation. It can also help display complicated scientific or engineering data or serve as a training or teaching aid," Marketing Manager for Apple Australia, David Roman said.

The plotter features four colour pens which can be interchanged automatically during operation. Commands given to the plotter by the graphics software determine pen selection, so a user does not need to stop the plotter's operation to change pens.

Designed for both plotting accuracy and speed, the plotter provides 0.1 mm resolution, 0.2 mm repeatability, and 10 cm/sec plotting speed. Its variable-width plotting bed and adjustable pinch roller mechanisms permit a wide choice of media choices up to 297 mm x 420 mm (A3).

The Apple Colour Plotter uses a standard RS-232C serial interface and will connect directly to the Apple III's built-in serial port. Apple's Super Serial Interface Card connects the plotter to the Apple II, Apple II Plus, or Apple IIe.

An accessory kit and a multi-pen

capper are also included with each plotter. The kit contains a user's operating manual, connector cables, and one 50-sheet package of paper printouts. Designed for convenient pen storage when the plotter is not being used, the multi-pen capper allows all four pens to be capped in a single motion.

A complete range of Apple plotter supplies is available for separate purchase, including four types of pens in eight colours, two sizes of paper, paper-backed transparencies, and the multi-pen capper.

*The new Apple Plotter.*





## New DOS for the Apple II

Apple Australia is distributing a new DOS to Apple-licensed software developers for applications development. Called 'Prodos', it provides increased compatibility between the Apple II and Apple III, and the higher performance required for more sophisticated Apple II applications.

Prodos uses the hierarchical file structure, file naming conventions and data formats of the Apple III Sophisticated Operating System (SOS). Thus, Produs data files and data media are interchangeable on the Apple II or Apple III.

Prodos' design frees the Apple II from the physical limitations of the 143K Apple disk II drive. Using Produs, the Apple II can handle larger files, such as those often required by word processing and data base applications, and can recognise any disk storage device that uses Apple's protocols. Produs-based applications will never need to be rewritten to recognise new storage devices for the Apple II.

In addition, Produs' hierarchical Unix-like structure provides the Apple II user with an organised method for managing larger numbers of files on larger storage devices.

Prodos supports interrupt-driven processing, which is required for technically-advanced applications such as networking and data communications. Because it shares

common data formats with SOS, Produs supports mixed network environments, such as Apple's forthcoming local area network Applenet, that accommodates both Apple II and Apple III computers.

Due to its sophisticated design, Produs also offers more efficient memory management and a faster user response time. These enhancements will give Produs-based application programs increased performance in locating and transferring data.

Similarities between Produs and SOS will allow developers to write single assembly language source code for an application that can be used to easily create common Apple II and Apple III applications. This capability increases developers' productivity and gives users an easy upgrade path from the Apple II to the Apple III.

Prodos does not make the Apple DOS 3.3, SOS or Pascal operating environments obsolete, and all will continue to be available as licensed products from Apple. Users will be able to convert DOS 3.3 data files so that they work with Produs-based application programs to take advantage of the advanced capabilities that Produs provides.

Prodos-based applications will not require hardware changes to the Apple II, Apple II Plus or Apple IIe. The current disk II interface card will work with DOS 3.3, Apple Pascal and Produs applications on all Apple IIs.

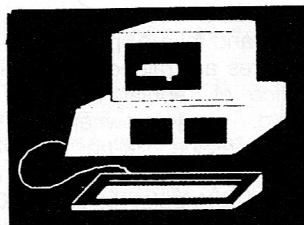
## Millionth Apple II

The one millionth Apple computer was produced recently at Apple's Texas manufacturing plant. The millionth computer was the first in a program where Apple are giving a computer to each of California's 9,000 schools.

"This computer represents the one millionth time Apple has bought technology to individuals through personal computing," said Steve Jobs, chairman of the board and co-founder of Apple. "The world is moving from an industrial to an information society and we believe the

Apple personal computer has done much to foster that transition."

Production of the Apple II — which has evolved into the Apple IIe model — is being increased. They are now being built at the rate of one every eight seconds during the working day.



# GOOD... BETTER... BEST.

That's us . . . After 3 years' of selling Apples, longer than anyone else in Sydney, we know we can support you better. Come in for some friendly service from people who know Apple.

## PRINTER BONANZA

New! Lower prices on the world's best printers:

Epson Rx-80	\$ 595
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# The real truth about the fake Apple

by Gareth Powell

Elsewhere in this issue we mention how this company became intimately involved with Apple computers. Because of our interest in Apples, and because we maintained a close contact with Hong Kong, Manila (where we have offices) and Taiwan, we probably know collectively more about fake Apples than any other company in Australia.

Fake Apples first emerged about three years ago. At the time the distributor in Hong Kong for real Apple computers was one Neville McKay, an Australian flight engineer with Cathay Pacific. In fact, at that time his company, Delta, had a fair claim to the distribution rights for the Apple throughout most of Asia and Australia. He ran his operation from part of a large house in Kowloon in an area notorious for short-time motels.

Neville McKay was flying throughout Asia and it was he that spotted the first fake Apples starting to be manufactured in Taiwan.

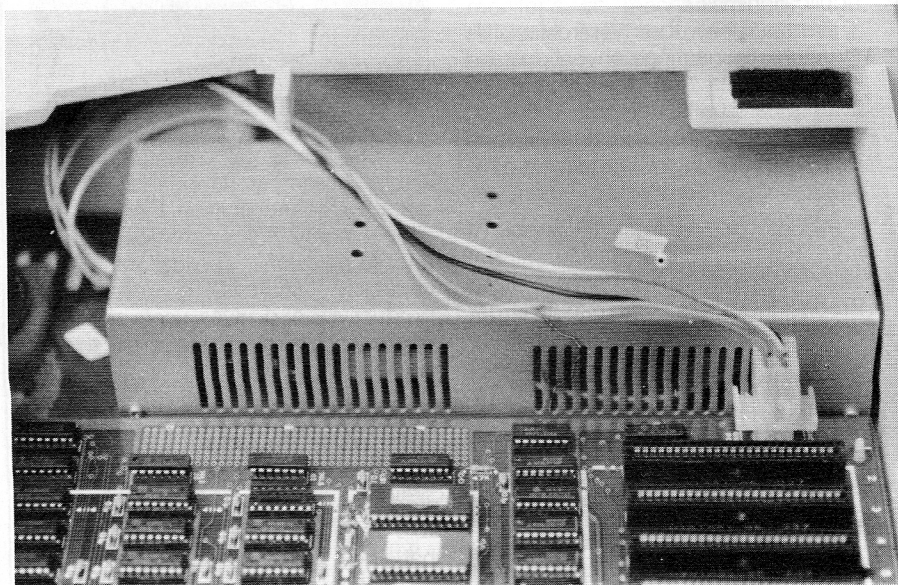
At his own expense he carefully investigated the scene and sent a full report to Apple in America, in their palatial premises in Cupertino. No apparent action resulted.

Despite a mound of growing evidence, for two years Apple Inc appeared to do effectively nothing about the pirates who were happily churning out Apple copies.

This writer was involved with Neville McKay and Jeremy Lack (the managing director of Delta) in writing a memo to Apple in America telling them yet again of the situation in Taiwan. The memo named the 26 manufacturers who were then operating, gave their addresses, and pointed out that of the 178 members of the Taiwan Apple Users' Club only three had genuine Apples.

There was no response to this memo.

Apple Inc now appear to have woken up to the threat of these fake Apples and have indeed sent a team of lawyers to Hong Kong, Singapore and Taiwan. In some ways they have been effective. In some, not. Obviously, the suggestion that



*The power supply of a fake Apple. This one has already been repaired once.*

we are making here is that this problem is, in the main, one of Apple's own making. If they had acted promptly and effectively as soon as a fake appeared then the situation might still exist, but it would be one of controllable proportions.

## The Current Situation

If you are in Hong Kong you can catch the Mass Transit Railway to Shamshuipo. When you get off head for the exit marked "Fuk Wa Street/Kweilin Street". As you come out into the street you will see in front of you, slightly to the left, a large building with signs in Chinese you do not understand. Starting at the basement you have three floors which sell nothing but fake Apples and fake Apple peripherals.

These stores are raided by the Hong Kong police at regular intervals and charges laid. The store-owners pay their fines and continue selling their fake Apples — much to the distress of the new official Apple distributor in Hong Kong who is, incidentally, not Neville McKay or Delta. (They have turned their energies to

making and selling the Med Fly computer, of which more later).

All of these fake Apples are totally illegal under Hong Kong law, but it is highly unlikely that the sales will ever be stopped until effective action is taken in Taiwan, the source of all these troubles. Whether it is possible to take such action at this late stage of the game is a matter for debate.

Daniel G. Wendin, Associate Counsel for Apple Computer, has said in an interview that little can be easily accomplished in Taiwan. And he is probably right. However, Apple has the cooperation of the United States customs in stopping the importation of fake Apples into the United States, and it is possible that other countries may be persuaded to take that line of action.

At the moment cases are pending against two Taiwanese manufacturers — but the likely results will not be known for some time. (It has been suggested that fake Apple manufacturers in Taiwan are now turning their attention to producing legal IBM compatible machines. Which is





One of the newer fake Apples, with a numeric keypad and different case. This machine is comparatively reliable.

interesting if true. It has also been suggested in the last two weeks that the Taiwanese government, concerned with its public image, is introducing new laws in January of 1984 which will increase the penalties for copying copyrighted articles. However, the penalties will be prison sentences which can be paid for as fines. In other words, the only penalties against the Taiwanese manufacturers will, in fact, be financial. In our opinion it is unlikely that this will work although it is a step in the right direction.)

In the United States Apple took the manufacturers of the Franklin Computer, a machine derived very closely from the Apple II, to court to try to obtain an injunction against continued sales of the Franklin. Despite stories that have appeared elsewhere, Apple did not lose that case. The judge in denying the injunction merely stated that he was unable to determine the law and that a full trial was needed to decide the issue. Apple has now appealed that verdict to the Third Circuit Court of Appeals and

have won quite decisively. The decision is a landmark decision because it gives the protection of Copyright to an operating system. Legal opinion, heretofore has thought such an argument untenable and there is not much doubt that Franklin will appeal. Whether they will win is anyone's guess but the judgement as handed in Apple's favour will, if it stands, effectively stop all Apple copies in the United States.

## Australia

The situation in Australia is more complex.

There is no doubt that it is not illegal to own an Apple copy (whether it is a wise decision we will discuss later). It is almost certainly illegal to sell them, under at least two counts, passing off and infringement of patent.

Injunctions have already been successfully obtained. These injunctions will, eventually, have to be tested in court, where the decision will be made as to whether these pirate copies are illegal. The best legal opinion that we have been able to obtain suggests that Apple would win such an action in the Australian courts.

Finally, it is worth noting that pride goeth before a fall. Daniel G. Wendin — the aforementioned Associate Counsel for Apple Computer — stated in an interview that the new Apple IIe was a solution to the problem.

He said, God bless his innocent soul, "This changes things, their Apple II

copies won't sell so well any more."

We have sad news for Mr Wendin. Machines that copy the IIe in almost every function — 64K on the board, upper and lower case — are already widely available. This article is being written on one.

## Are they worth the money?

That then is the current and complex legal situation.

The question is, are fake Apples worth the money?

Let's look at the machines themselves. All fake Apple salespeople try to give the impression that their machines are made in Japan. Frequently Japanese names (Uchi Yama is the most common) printed on sticky paper tags are stuck in strategic parts of the machine. The words "Made in Japan" can often be seen inscribed on one of the boards.

As far as we can ascertain — and we are in a better position to check this than most people — the number of fake Apples that have actually been made in Japan is infinitesimal, if indeed any at all have been built there. The statement made by the vendor that this is a "Japanese" fake Apple and consequently of a superior quality is therefore not true.

It is marginally possible that some power supplies come from Japan and there is no doubt that non-standard disc drives are manufactured there in a big way. But not fake Apples.

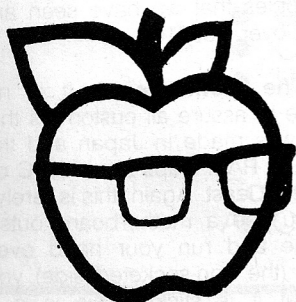
The majority of fake Apples are made in Taiwan or Hong Kong. And they are most definitely built on a "cottage industry" basis.

Cast from your mind any idea of electronic factories with trained technicians working under clinically clean conditions with careful inspection of the finished product. That ain't the way it happens.

In most cases a manufacturer acquires a set of boards and sends them out for soldering on a piece-work basis.

In Hong Kong you can frequently see shop attendants at the aforementioned Golden Supermarket assembling boards during slack periods. They are, indeed, making the fake Apples that will later be offered for sale to customers as "Manufactured in Japan".

The result of this piece-work approach is obvious if you carefully inspect any machine that is tendered for sale. Here is





how to look at a fake Apple and see its faults (and its strengths).

**1. Baseboard.** First turn the machine over and look at the metal base. Over the past year the quality of these has deteriorated rapidly as the Taiwanese and Hong Kong manufacturers fight to save a dollar in a highly competitive market. The boards are now almost all made by a tinware manufacturer who specialises in making baking trays. You will notice the resemblance at once. You will also note that there are several holes in the baseboard which appear to serve no useful function. Again, that is because the baseboard manufacturer is making his product for possibly twenty or thirty assembler/manufacturers and the board has to be infinitely adaptable.

You will also see that at least one and probably three holding screws are missing. These have been removed by the shopkeeper to use as spares. Although, as on a real Apple, these are black screws, they are always of a smaller diameter and frequently have a straight slot rather than a Philips head.

**2. Casing.** The casing of the machine will be one of many shades ranging from white to dark tan. This is an approximation of the Apple colour (which acute observers will also have noticed ranges fairly widely). Note carefully that on all fake Apples this is very soft plastic indeed and scratches very easily. The lid will not fit as well as the genuine Apple lid but the arrangements for fixing it in position are, in many cases, superior to those used by Apple. On the standard Apple the lid is held down by two rubber



*Fake Apple keyboard. Note how the metal tray at the bottom protrudes from the body of the machine.*

pads which cling to each other and which frequently fall off.

On the fake Apples it is normal for the lid to have two built-in hook projections under it which fit into the Apple main case. The lid therefore has to be slid back about five centimetres before it is lifted. This is a positive and excellent locking system.

**3. The power supply.** Inside the machine all is familiar with, apparently, everything in its rightful place. But beware. The first and biggest problem lies in the power supply.

Apples need a diet of +12, -12, +5 and -5V DC to work correctly and these measurements are critical. Further, in order for the disk drive or any peripheral to work there has to be enough power, expressed in amps. Lastly, there must be a built-in fuse otherwise any fault can be very costly indeed.

Until very recently, no fake Apple power supply fulfilled any of these conditions.

Workshops in Hong Kong, Taiwan, the Philippines and Australia are full of these power supplies which have failed and cannot be economically fixed. Now that the buying public in Hong Kong and Taiwan has caught on to this problem, there is a flood of power supplies being offered which are, so the unsuspecting buyer is told, of American, Japanese, German or English manufacture and guaranteed not to go wrong. Power output is frequently claimed to be 7 amps or more.

However, a close inspection of the interior of these power supplies shows that they are still from Taiwan and still made in the old way, but with two differences. The casing is sprayed black instead of gold and fuses are now inserted.

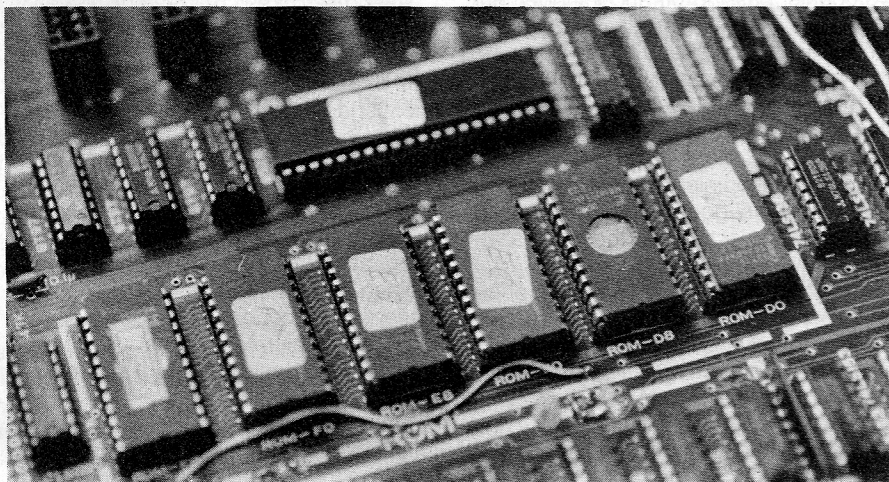
Only a trained electronics engineer can check out one of these power supplies accurately. At the moment, over the whole range of fake Apples available, the Mean Time Between Failure on the power supplies would be of the order of 24 hours. **The worst feature of all fake Apples is the power supply.**

We have seen one power supply in Hong Kong, which we had tested by an electronic engineer. It passed all his tests with flying colours. It can be easily identified by having a whale-like hump at one end. BUT, at this writing, it is not available as standard equipment in any fake Apples that we have seen and its price is over Aus\$100.

**4. The motherboard.** It is normal practice to assure all customers that the board was made in Japan and the ROM and RAM chips are of NEC quality at the very least. Again, this is rarely true.

If you see a motherboard outside a machine and run your hand over the bottom (the non-socketed side) you will feel that it is sticky. This is a dead

*The ROMs on a fake Apple. They have been juggled around from a number of different machines to get a working set. Note jumper in front of them, a common sight in these machines.*





giveaway that the board was assembled at home or in the shop, where they do not have the facilities nor the inclination to clean up the boards after soldering.

There are several types of motherboard of which the most reliable is known as the Golden III. (Names on all the machines are totally pointless. A fake Apple is a fake Apple by any other name. The knowledgeable Chinese users ignore the names of the machines and concentrate their buying expertise on the components.)

The Golden III (and yes, Virginia, there is a Golden II and a Golden I) has 48K on the board and works relatively satisfactorily. In keeping with the move to imitate the Apple IIe there are now 64K boards of which the most common is the Vectorio. Sadly, these boards are full of bugs and many programs will simply not tie-in to that extra 16K of space, including Zardax and, sometimes, Visicalc.

The slots at the top end of the board on the real Apple have spring loaded gold fingers which grasp interface cards firmly.

Diligent inspection with a flashlight (which will not be encouraged by any Oriental shopkeeper) will show that these fake sockets are not gold plated and not spring loaded.

It is common practice either to use a sponge rubber pad in the cover of the machine to hold cards in their slots or to use a piece of rubber inner tube that goes around the motherboard and over the top of the different cards. Eventually, this last solution causes the motherboard to buckle, bringing sadness and confusion to all.

**5. The keyboard.** This is the best part of a fake Apple. It is, in the opinion of many, in some ways superior to the genuine article on the Apple II but not the Apple IIe.

It always has real upper and lower case built in and uses a system known as the Hall effect which makes for a pleasant keyboard to type on and which lasts much longer than the genuine Apple II keyboard. There have been complaints of

key bounce but we have never experienced this problem. If it is going to be used with the Zardax word processor it needs considerable modification by an expert.

As far as we are able to ascertain at this moment it is impossible to build in an automatic repeat key function.

**6. Accessory boards.** The most common board available from the pirates is an 80 column board which is a direct rip-off of the Videx board. The characters it produces are not of the best and there is a lot of snow on the screen. Its only advantage is that it is cheap. The 16k add-on boards in our experience almost never work. The Z80 card which allows you to use C/PM does.

Now comes the ten thousand dollar question — would we buy one?

We have.

Many of them.

And in every single case they have broken down very quickly and had to be repaired.

**REVIEWED IN  
THIS ISSUE**

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In Hong Kong, and to a lesser extent in the Philippines, this is easy, as fake Apples are catered for in a major way. The quickest way to repair them is by cannibalisation, and thus any fake Apple owner quickly becomes very expert at it and has a non-operating machine sitting there and looking at him with dumb reproach.

These machines are unreliable to the nth degree, where "n" approaches infinity. It is logical that they should be. They are built down to a price in a highly competitive market. And they are built under conditions which are frequently Dickensian.

For a hobbyist who knows which ends of a soldering iron to use and can afford to buy two machines at once — one for working, one for fixing — then such a machine may be no bad idea.

However, it is significant that in Hong Kong, where we have direct access to the biggest fake Apple market in the world,

we have now switched back to genuine Apples — simply because we cannot afford the down time involved in having the machines fixed on an almost daily basis.

When the legal department of Apple get their act together — and their performance to date inspires no cheers from the editors of this magazine — then it is possible but not probable that the supply of fake Apples will dry up, certainly in Australia. Until then they will continue to be available.

But if you buy one bear in mind that you are paying two prices.

One is the cash you lay down for the machine.

The second is the cash you will undoubtedly have to pay to get it fixed when, as sure as God made little Apples, the power supply goes on the fritz, the chips malfunction and the accessory boards start to fall out. Believe us, we've been there, done that.

### STOP PRESS

Since this article was written, there have been further developments in the case concerning Franklin in the USA. A three-judge panel in the Court of Appeals unanimously overturned a lower court's ruling in favour of Franklin. The judges ruled that object programs could be copyrighted, even if they were contained on silicon chips, and that silicon chips are not just machine parts. Rather, they are a "proper embodiment of Apple's original creative work", and could be copyrighted as a literary work under existing laws.

Franklin intend appealing the ruling, going to the Supreme Court if necessary. "We still contend that Apple was abusing the copyright laws to gain a monopoly on equipment compatible with its machine", said Franklin's lawyer Jerome Shestack. Apple are now seeking to have an injunction served against Franklin, stopping them selling their computers. □

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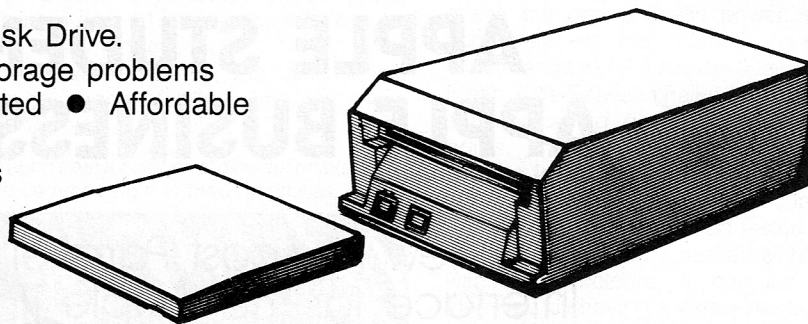
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# The OLYMPIA ES-100 Typewriter-Printer

Review by Tom Price

**M**ost Apples are used as word processors at least part of the time. Many are used solely for that function. As anyone who has ever used one knows, one of the most important parts of a word processor is the printer. After all, a word processor exists to process and create the printed word. It is the output of the printer that is the end result of word processing.

A bad word processing program can produce a beautiful looking document if it uses a good printer. The program may be cumbersome to use, but the end result will be what is desired. Similarly, the best word processing program in the world will be limited in the quality of its output by the printer it uses.

The choice of a printer for use with a word processor is determined by three factors: speed, quality and price. As with everything, the user is looking for value for money, a printer which will do his job adequately at an affordable price. In most commercial environments both a reasonable print speed and typewriter

quality are necessary. This can mean an investment in a printer which costs twice as much as the computer.

If you are prepared to sacrifice speed and quality, you can save a lot of money. For private use, an inexpensive dot matrix printer will usually do, but many individuals and companies with low to moderate word processing needs still want good quality output. One answer is the typewriter-printer, one of the new breed of electric and electronic typewriters with an interface that also allows them to be used as a printer to a microcomputer.

Although such machines are comparatively new they have become very popular. Today virtually all of the major typewriter manufacturers allow their standard office typewriters to be interfaced. They are cheaper than daisy-wheel printers, and have the added advantage of being useful as a typewriter for small or quick jobs, or when the computer is tied up doing other things.

Their main disadvantage is their speed. They are usually so slow that they are

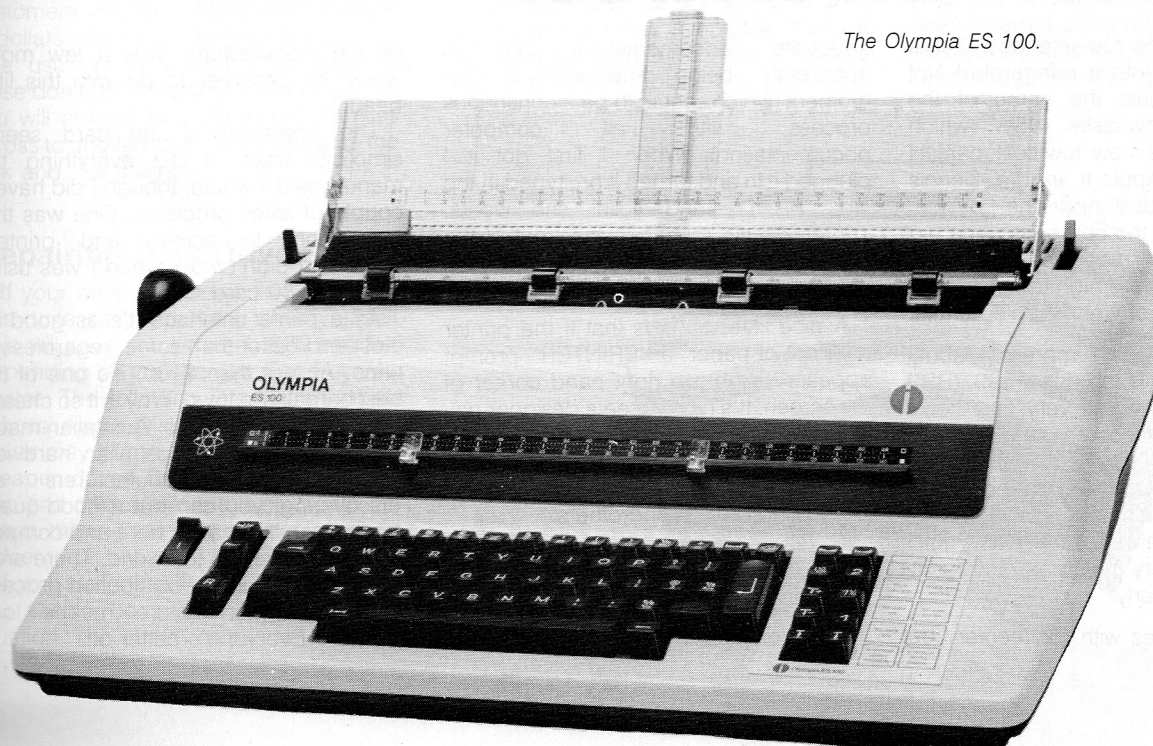
unsuitable where speed of output is a major consideration. Their place is with someone who wants top-quality word processor output but doesn't want to pay a lot of money for it, and who doesn't generate a lot of output. If you are such a person, a typewriter-printer could be for you.

## Olympia's ES-100

One of the most popular typewriter-printers connected to Apples in Australia is the Olympia ES-100. It is quite a large unit, but very attractive and very easy to connect to an Apple, via a serial interface. We personally know of at least a dozen sites where the ES-100 is being employed as the printer for an Apple II word processor, and at every one of these installations the performance has been without complaint.

The ES-100 has a daisywheel print action. The print hammer strikes one of many characters arranged around the outside of a disk. The impression of each character sticks out from the disk, which makes the print wheel look a little like a

The Olympia ES 100.





daisy. Daisywheels are reliable, but generally slow ... the ES-100 is rated at just 17 characters per second.

Although the print wheel is Olympia's own and is not changeable with wheels from other manufacturers this should be no problem, as a wide range of typefaces are available, over twenty. Olympia actually print their customer newsletter on an ES-100 as an advertisement for the machine itself and the different typefaces. One small peculiarity of the daisy wheel is the method used to change it. You must insert the entry cartridge into a slot, the daisywheel clips into its cartridge and is easily withdrawn. The first time I tried to do it I didn't have the manual (my fault, not Olympia's) and I couldn't for the life of me work out how they got that daisywheel to slide down between the print head and the ribbon. For about the hundredth time in my life, I realised that I should "read the manual".

Olympia have recently released a more sophisticated model with a built-in memory, the ES-105. It is a better typewriter, if you are using it primarily as a printer there is no real difference to the performance. It has a

decimal TAB capability, automatic underline, bold face, and a 1000 character common phrase memory (glossary).

### Service

Olympia's service is also impressive. I once earned a living as that lowest form of life, a microcomputer salesman. On every occasion that I sold an ES-100, a representative from Olympia contacted the buyer direct and arranged for someone to go out and spend a half hour or so demonstrating the machine's use.

Apart from the quality of the type, the most important factor in a typewriter's use is the feel of the keys. While some keyboards are definitely better than others, this is largely an area of personal preference. The ES-100 has a light touch which feels a little spongy to some people, especially when they are used to typing on an Apple keyboard. If you're not changing from one keyboard to another all the time, you won't notice any peculiarities — the Olympia is a superb keyboard for heavy use.

Connection to the Apple is via an

RS-232C Serial interface. With most of the serial cards sold with an Apple, this means just a straight-through cable connection. This is always an advantage: some types of printers can be a nightmare to connect. If the ES-100 is to be used as a printer, it comes with a toggle switch at the back for printer use or typewriter use. Thus it only requires a flick of a switch, but it's a good idea to put a little note on the front of the machine to tell you which position is which.

**PRICES** (recommended retail including sales tax)

**ES-100** (typewriter alone) — \$1595

**Interface** (necessary for printer use) — \$369

**Tractor feed** (necessary for continuous stationery) — \$375

**Single sheet feed** — \$1355

You will also need an serial interface card for the Apple, at around \$200 (the Digitek works very well), and a cable, which your dealer may well make up for free as part of the deal: make sure you clarify this beforehand or you may be up for an extra \$50. □

# The AUTO-ICE Parallel Printer interface.

**T**he Automatic Ice interface! Turns your Apple into a refrigerator! Not really, it's just the name of the company in Newcastle NSW which manufactures this new low-cost parallel interface for the Apple II and IIe. Dennis O'Keefe, who designed the device, explains that yes, the company once did make ice-making machines, but now concentrates on more high-tech projects. Add it to your list of weird Apple names.

The first thing which impresses about this new interface is the price, \$99. (RRP ex tax). This compares very favourably with such interfaces as the Digitek Printmaster at \$200. The next thing that impressed me was that it worked when I plugged it in. That's always a good start, and it doesn't always happen. Printer interfaces can very frustrating devices to get to work properly.

The card comes with rudimentary but

adequate documentation that is apparently being improved at the moment (which seems to be a continuous process with all computer documentation). When I first got it I plugged it in and turned it on, typed in the old "PR#1", and voila! she works. There's a little routine in the front of the manual you can follow to see if it's working properly.

A nice little touch is that if the printer runs out of paper, a "PRINTER" prompt appears at the top right hand corner of the screen. It's nice to see a designer pay attention to such a small detail. The Auto-Ice interface does of course support graphics printers, such as the Epson and C.Itoh and most of the others.

As with most of these cards manufactured on a relatively small scale, the packaging is a little basic, but that's the sort of thing which improves with time

as the manufacturer sells a few more, which he deserves to do with this little beauty.

The operation of the card seems simplicity itself. It did everything the manual said it would, though I did have a couple of small problems. One was that the "print to screen and printer" command didn't work when I was using my Vision-80 card.

As a printer interface it's as good as most and better than some, regardless of price. At less than \$100, it's one of the best bargains in town. Why is it so cheap? Basically because it's Australian-made. As scores of small Australian hardware and software manufacturers are discovering, you can put a good-quality product on the market here and compete with the biggest in the world. There are a few less steps in the distribution process, and local manufacture means local support. Everyone's better off. □



# Disks and Disk Drives

By Rocky Clark

**M**ost Apple users have a disk drive, so for my first column I will cover some of the more important tips on disk drive and disk care.

When you remove and reinstall the Apple Disk II disk drive it is important to make sure that the disk drive cable is correctly seated on the connector on the disk drive controller card. If this cable comes loose or is installed incorrectly it can cause the disk drive to malfunction, and it will fail to boot.

If this happens you should exercise extreme care. Most times the LS125 chip on the disk drive analog board self-destructs. For some reason this also has the effect of destroying the DOS tracks of any disk that happens to be in the drive at the time.

It also will destroy the DOS of any disk subsequently inserted in the drive. With protected disks there is no way that you will be able to reconstruct your disk (friendly safebreakers excepted!).

Therefore if you find that a disk will not boot don't keep inserting all your valuable purchased program disks to find one that will, as you may be systematically destroying all of them (if you don't believe me talk to your local Apple dealer, who will give you many examples of customers who have destroyed hundreds of dollars worth of disks this way). To play safe use only standard DOS disks. If these don't boot and you rub out the DOS you will at least be able to FID the files across to another disk, then reinitialise the disk and use it again.

## Repairing Disk Drives

If your drive has blown its LS125 chip it is quite easy repair the drive yourself. This will save you between \$25 and \$45 depending on the charges made by your dealer. The following information relates only to Apple Disk Drives, other brand drives may or may not be similar. Some cheaper drives do not have the LS125 chip and others solder this chip onto the board, making removal and replacement trickier.

If you are going to fix your own drive, you should be aware of the warranty situation. The LS125 chip is not covered

under warranty if it blows because of a faulty connection (99% of the time this is the reason it blows). If your drive is still under warranty you can void this warranty by servicing the drive yourself.

Another point to note is that Apple Australia have a module exchange service on all their equipment. If they suspect that the drive has been tampered with they will not exchange your unit. They will repair your own unit and charge a \$25 handling surcharge. One way to tell whether or not a drive has been tampered with is by finding chips incorrectly inserted, missing, or in the wrong place.

You will need: a spare 74LS125N chip (cost around \$3), a chip puller, and a philips head screwdriver.

First disconnect the disk drive from the controller card (make sure the computer is off) then remove the four philips head screws from the base of the drive unit. Now slide the cover off towards the rear of the unit. You will now notice a green circuit board with a number of computer chips on it. On the front side of the board there are the five numbers 12345, and on the left side the four letters ABCD. If you take the coordinates B5 you will find the 74LS125 chip. There may be visible signs of damage, such as a crack or a small piece missing. If this is the case then you have found the problem. If the chip is not visibly damaged replace it anyway.

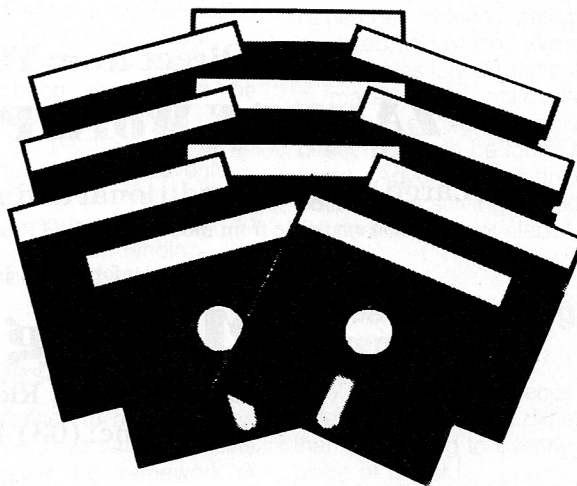
Use your chip puller to remove the old

chip. Then replace it with your new 74LS125N chip. Make sure that it is correctly inserted. On the top of the chip there is a small notch cut out at one end. This end is to face the B on the analog board. Reassemble the drive and test using a standard DOS disk.

## How to Repair Physical Damage to your Disks

If you physically damage your disk with something like finger prints, coffee or cigarette ash you may be able to recover data by cleaning the surface. This naturally is a last resort, as it could worsen the problem. However if all else has failed then you have nothing further to lose.

Create a clean environment and carefully remove the disk from its sleeve (the sleeve it's always in, not the protective jacket). Do this by raising one of the three flaps at the back of the sleeve, then removing that flap with scissors or a sharp knife. Try not to damage the sleeve too much as you will be reinserting the disk when you have cleaned it. Use a solution of methylated spirits and water on a lint-free cloth and gently wipe the surface of the disk, making sure that you do not touch the surface with your fingers. When all of the offending material has been cleaned away reinsert the disk into the sleeve and tape it up. If the disk is now OK transfer the files onto another disk, using FID. □



# Random Numbers not so random

The Applesoft random number generator, like all such routines, is only a pseudo-random number generator. It is possible that non-random patterns will occur. To avoid having predictable sequences occurring in your program you need to re-seed the random number generator. To do this it is best to use a number which is very hard to duplicate. In systems which have an inbuilt clock function this is easy, as you can read the number from the clock and insert it in your random number generator.

The Apple does not have a clock, so we have to use other techniques. One of

the easiest methods in Applesoft is to insert the following at the beginning of a program:

```
1 S = PEEK(78) + PEEK(79) * 256
2 X = RND(-S)
```

The locations PEEK (78) and PEEK (79) continuously increment whilst waiting for a keyboard input. After seeding the random number generator use the following statement within the random generating portion of the program:

```
Z = RND (- RND(9))
```

This will start a new random sequence.

Another point to note is that when using the RND function to emulate the throwing of multiple dice you need to keep the correct probability ratios. When throwing two dice, for example, the probability of the number 2 occurring (1 in 18) is much lower than that of the number 7 (1 in 6). This is often overlooked in amateur (and some "professional") computer simulations of board games. To overcome this problem generate two random numbers (or as many as required to emulate a die).

For two dice:

```
X = INT(RND(1)*6):
```

```
Y = INT(RND(1)*6): Z = X + Y
```

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# The Great Apple Game Challenge

**H**ear Ye, Hear Ye! We now announce the Great Apple Game Challenge. Test your skills against the best in the land! Pit your wits and your reflexes against that most deadly of demons, the dreaded Apple Arcade Game! Not for the faint-hearted!

The Great Apple Game Challenge is a contest in which contestants from all over Australia will be able to send in their scores of various Apple games. The contest will culminate in a play-off under competition conditions, with the winner being declared champion of all Australia.

Full details of this fascinating contest will be announced in the next issue of "The Australian Apple Review", but you

can start sending your entries in now. The games we will be judging are:

**Chop Lifter**  
**Apple Panic**  
**Olympic Decathlon**  
**Snack Attack**  
**Crisis Mountain**

We'd like to think that we could trust you all 100% not to lie, or at least cheat just a little bit, about your scores. But it's hard, particularly when you see another score only two more than the one you spent months getting. So we must verify the scores. We've talked about this a lot, and the only way we can really do it is for you to send us a photograph of the

screen showing your score. A Polaroid shot would be best, the frustration of scoring 9,990 in Olympic Decathlon and not photographing it because you left the lens cap on would be too much for even the strongest to bear. If you can think of another water-tight method of verification, let us know.

Sorry you Adventure fans and keyboard Generals, only arcade-type games are included, for a couple of reasons. Strategic games take much longer to play and many have unorthodox scoring methods. Arcade games are played by a lot more people and are much more suited to our envisaged public play-off.

## Adventurer's Corner

with Ed Mehrrens

**C**an't get far with Adventure games? There are many different ways of playing these fascinating games, but with practically all of them there are certain common elements and general strategies to adopt.

While there are many adventure-style games that are based on random number generators and offer little scope to the true adventurer, there are many which are based on complex algorithms. It is these which offer the most challenge and enjoyment. Programs such as Adventure, Oo-Topos, Ultima, Wizardry, Zork and all of the Scott Adams and On-Line series are excellent. They all require planning and strategy rather than luck against a random number generator.

### Rooms

Adventuring is based on solving puzzles and moving from one location to another towards a goal. Each location is called a "room". A room is a separate entity and will normally have some distinguishing feature such as "wide

river" or "twisty little maze". A "room" can be a forest, an ocean, a tunnel, any type of location. It need not be a conventional room.

Each room may contain objects, monsters or other characters. It will normally have exits, any of which may be hidden. Puzzles must be solved before monsters are overcome, objects obtained or exits used. The simplest type of puzzle is the use of a key to unlock a door.

In this type of Adventure there is a basic plot. Although there may be innumerable ways of proceeding it is this plot, devised by the programmer, which determines the quality of the adventure. The plots and subplots can be simple or complex, and movement from room to room easy or difficult. Finding the solutions to puzzles is the essence of Adventuring.

### Maps and Descriptions

There are similarities to a short story. Both have plots and a scenario which sets the mood and gives the framework of

reality. Descriptions of Adventure scenes should be complete without being verbose: Zork is one of the best in this regard.

As an Adventurer, your aim is to solve the puzzles and arrive at some definite end. Your path is made much easier if you construct maps as you go. Without adequate maps it is impossible to remember which paths have been explored and which have not, and where an item was found (particularly if it was in a maze). It is only after completely mapping an Adventure that the most direct route can be found to your end. In some Adventures higher scores are obtained for solving the Adventure in the shortest number of steps.

### Notes on Mapping Adventures

1. Use different pieces of paper for different levels, (three dimensions), rather than attempting to overlay maps on one piece of paper.

2. Use a consistent direction scheme where possible, e.g. Top = North, Left = West.

3. Use a box to indicate each room, write the name (if known) in the box and indicate the directions of all known exits with lines.

4. If something only works in one direction, indicate with an arrow.

5. Write important information alongside the box, e.g. does the bog contain a blue ox? Do you need to move the rug to find a magic trap-door?

6. Explore all directions, mapping as you go.

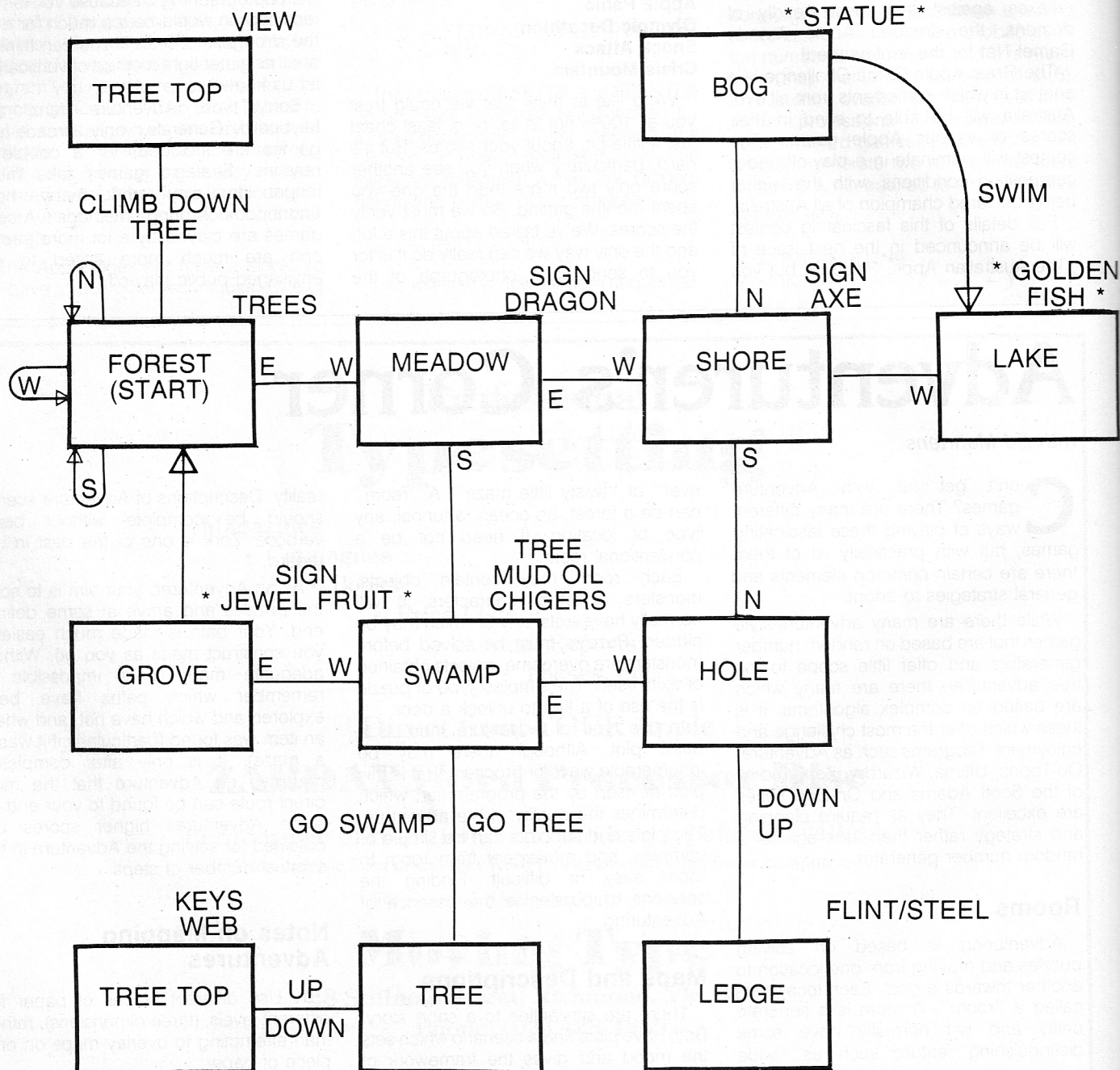
7. Map all mazes, even if you the descriptions of them sound the same.

8. If a direction appears blocked, remember that you may need something like a magic wand to go that way.

9. Once an adventure is complete, you can transfer your smaller maps to a master map.

Good luck, and Good Adventuring!

## ADVENTURELAND





# Crisis Mountain

By Dave Schroeder

Review by Graeme Philipson

**H**igh on a mountain in the Pacific Northwest of the USA the nuclear bombs are ticking away, hidden by terrorists in deep caves in the hillside. Falling rocks and lava make these caves almost impenetrable. Only the most daring or the most foolhardy would dare brave this hell on earth to defuse the bombs and prevent the mountain and millions of people being obliterated. That fool is you!

Crisis Mountain has the most original scenario I have ever seen in an arcade game. The object is to guide a small man around this network of caves and tunnels, digging up bombs before they count down to zero and explode. This brave little fellow can die a horrible death by many means: he can get hit by the rocks which roll everywhere and are sometimes inescapable; he can fall in the lava; he can fail to defuse a bomb; AND ... he can have a brush with Bertrum (the crazed radioactive bat).

I have always found most arcade-type games boring after just a few playings. Not so Crisis Mountain. It has a subtlety missing in most games of this type. After playing it for weeks I was still discovering new things about the strategy, when to dodge certain types of rock, how to jump lava, new ways to avoid Bertrum (the crazed radioactive bat), why seemingly fatal situations could be turned to advantage.

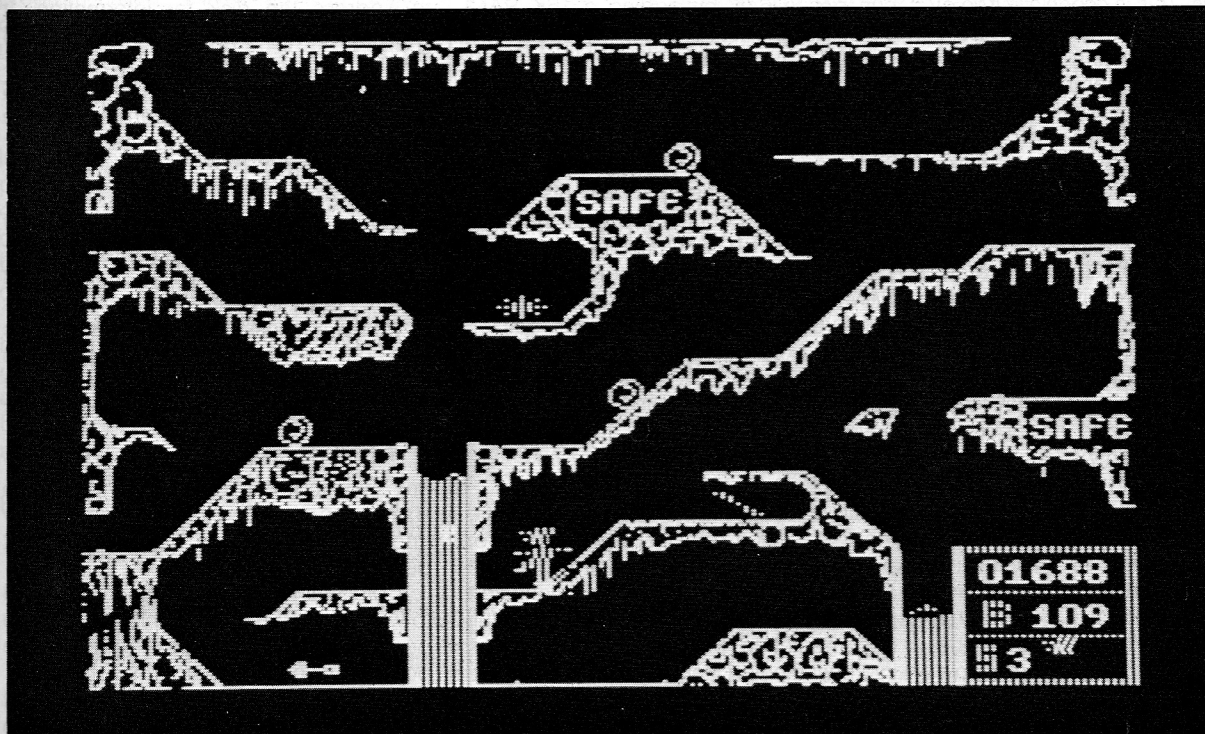
The game can be played with paddles or a joystick. I've tried both, and it's really a case of personal preference. A self-centering joystick is best, because of the split-second changes of direction it is often necessary to make to avoid radioactive rocks or the dreaded Bertrum (the crazed radioactive bat).

Crisis Mountain's use of colour and animation is superb, which is to be expected of a game nowadays. What really sets this game apart is its sophistication. It can be enjoyed by a

beginner but it is always challenging no matter how good you get, because luck plays a part. There can be different amounts of time left before bombs explode, the special "Nova" prizes can appear close or at the other end of the screen, and Bertrum (the crazed radioactive bat) flies around the screen at random in the higher levels of the game, ever ready to dispense his own nasty brand of computer death.

The game is unique in my experience in being almost as much fun to watch as to play. "Ooh!", "Aah!", "Watch out for Bertrum!" (the crazed radioactive bat). Watch out indeed! I can't wait for the next game from Dave Schroeder's fertile imagination, "Dino Eggs", but for now I'll keep playing Crisis Mountain to the exclusion of all other Apple games.

**Crisis Mountain** by Dave Schroeder. Synergistic Software, distributed in Australia by Imagineering. RRP \$49.95



Crisis Mountain.

# The Vision-128 RAM Card

Reviewed by Gareth Powell

**B**efore you start reading this review it is best that you know that there is the possibility of bias. The Vision-128 RAM card is made by Harry Harper who runs Zofarry Enterprises and Vision-80 Pty Ltd. We are biased because Harry is a friend of ours and a former employer of the editor. Having got that caveat out of the way, let us look at what is being offered.

Harry Harper was also responsible for the Vision-80 card, the Rolls Royce of 80 column cards. The Vision-80 includes in its largish bulk (not unlike Harry Harper himself) a multitude of goodies, including a communications facility that we use regularly to interface our Apples with a Wang word processor and typesetter.

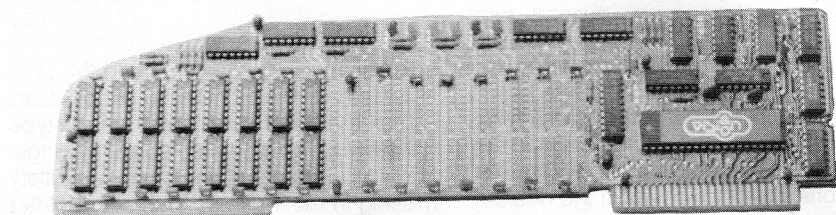
The Vision-80 is, in the opinion of some, over-engineered. It also produces a substantial amount of heat and for long sessions we believe it works better with a cooling fan installed in the Apple. Indeed, we think it's essential. It is interesting that Zofarry offer a service for installing such fans at a price of \$70.

You can get into a brisk argument with almost anyone as to the merits of various 80 column cards. This is especially true of the new Apple //e card which is generally frowned upon by the cognoscenti, possibly because the characters it forms are not as elegant as those from the Vision-80 card.

The difference is not enough to worry our old eyes and the advent of the Apple 80 column card, normally sold as part of an Apple "starter kit" has been a severe blow to the sale of other 80 column cards. The Apple card is also relatively small and does not give off enough heat to warrant a fan.

In the same tradition as the "Vision-80", the "Vision-128" 128K RAM card is substantial in size and built to superb standards. It also works first time.

We tested it by writing a major Visicalc program for a security company that required all of the memory available, as there were multiple sets of calculations which were interdependent and immensely complex. Those of you who are Visicalc fans will know that the shortage of memory on a standard Apple is one of its negative features. Those of you who have not used Visicalc or one of



*The Vision-128. Note the provision for extra memory chips for conversion to 256K.*

its many clones have a treat in store. It has been said that Visicalc has sold more Apples than any other program written. We believe it. We have used Visicalc since its inception and we still have areas to explore, and techniques to test.

Three pre-boot disks are available with the Vision-128. They are from Pynwon, the company run by Laurie Boshell of Linden, NSW.

Once the board is installed (Slot 4 or 5 is best) the Apple II becomes a machine with 172K bytes of RAM.

Which is theoretically impossible. The Apple's processor is of course the 8 bit CMOS 6502, and therefore will address a maximum memory of 65,536 bits of information, or 64K. On the Apple II you can get to 64K by adding a 16K RAM card. On the //e this has already been done. To expand the RAM further a neat trick called "bank switching" is needed. "Bank switching" swaps slabs of memory around with lightning speed so that you the operator know nothing about it. All you know is that as far as RAM capabilities are concerned your machine believes it is a 172K machine.

Indeed, there is an upgrade for this RAM board to take it up to 256K, at which point you are really cooking with gas.

Apart from being ideal for expanding the capabilities of Visicalc, it can also become what is effectively another disk drive with, in theory, instantaneous access.

How do you manage this?

It is not easy to find out — to improve the intelligence and test the tempers of purchasers Harry Harper provides the absolute minimum documentation possible. Not to provide full documentation with a board like this is inexcusable and Harry can hang his head in shame.

However, the system is that you boot

the "Vision-128" Utility disk and then boot any disk which contains DOS (or Pascal or CP/M, if that's what you want) followed by a Carriage Return. The Operating Systems themselves are not included because they are proprietary software.

If you are using normal Apple DOS, you then type RUN VISION DRIVE and answer the prompts, no Carriage Returns required. When you have finished the Applesoft square bracket prompt appears. Enter NEW. Then enter INIT HELLO, Sx, Dy. At this stage the V-128 acts as an extra drive.

You can perform the above quite quickly. It works wonderfully well when you have a program which frequently has to address the disk for information. It works well with Apple DOS, CP/M and Pascal. But apparently it doesn't work with Zardax as this has a unique DOS which will not respond. Zardax will use the extra RAM, but only as a printer spooling area.

And it does not work with Multiplan, which is a great sadness to us all. If Visicalc is the best program that was ever written for Apple (and that is an argument we are happy to defend) then Multiplan is its worthy successor. It does what Visicalc does but does it better. It also has added facilities which take it very firmly into the second generation of spread sheet programs.

The word from Harry Harper is that they are "working on it" and that it is three to six months down the track. Being of a low and suspicious nature we simply do not believe it.

If Multiplan could have been modified to work on a 256K board this would have been done a long time ago as the potential sales are staggering.

However, it is worth noting that the card will work with C/PM so that you can use



SuperCalc and other similar programs. This is NOT indicated in the documentation and was discovered by the redoubtable John Lehane when he was testing it for us.

Is the Vision-128 worth the money?

The answer is yes, especially if you work with Visicalc to any great extent, as we do. It is considerably cheaper than similar boards and to our mind is better made. Interestingly, there are no sockets and the RAMs go straight into the board. We have frequently been told that the weak link in the Apple is the sockets and Harry confirmed this. His view is that sockets are responsible for intermittent faults because they interpose yet another problem area. This confirms what we have heard from other sources — that 90% of faults can be traced to sockets. You can use sockets which will have a much lower fault rate but they have gold-plated pins and cost \$1.80 retail, which would make the final cost of the board stratospheric. The Vision-128 also has a built in buffer which makes data transfer more reliable and protects the board whilst reducing power consumption. The board boasts seven LEDs which show which banks are being used and how. Now if only we had good documentation we could do something with that.

It is worth knowing that on the disk is a program called "DIAGNOSTICS" which does just that, diagnoses the board and tells you if it is faulty.

Can the board be improved?

Yes, in the documentation.

It also seems that the board takes longer than it should to load and access programs in the board when it is operating as a RAM disk. But this may be our imagination and until we test the board comprehensively against samples of the opposition is not a fair criticism.

At the price this is the best expansion board we have seen. When and if the documentation is sorted out and when and if it accepts Multiplan it will be the best RAM expansion board currently available for the Apple II or //e.

Prices	Vision-128	\$499
	Vision-256	\$699
	Vision-VCE	\$ 69
	(Visicalc pre-boot)	
	Vision-AWII	\$ 49
	(Applewriter II pre-boot)	
	Vision-Util	\$ 99
	(Utilities)	
	Vision-Combo	\$799
	(V-128, V-VCE, V-Util)	□

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# Word Processors — Australia versus the World

**This is an Australian magazine and we like to support Australian products, particularly if they are the best. There are two very good Australian word processing programs available for the Apple II and //e. GRAEME PHILIPSON reviews them below.**

**B**efore word processors were invented people used to write things down with a pen on lined paper or type information serially in what now seem primitive ways. The word processor is banishing scissors and paste from the editor's desk, liquid paper from the typist's elbow, and much of the frustration from the writer's task.

The sheer popularity of the Apple II has meant that it has always been heavily used as a word processor. Despite two major disadvantages — its forty column upper-case only video display and its sparse keyboard — the Apple II has found major use as a word processor, because clever design and new peripherals have largely alleviated these problems. The new Apple //e goes even further towards answering these criticisms. Its keyboard is much better and an eighty column display is a common option.

## The First Apple Word Processors

Word processing programs for the Apple II have been around since just after Apple IIs were around — or Apple II disk drives, anyway. The first to surface in Australia was "Sandy's Word Processor", by Sandy Donald of Dundas in Sydney. He marketed it himself, as he still does, as well as through Rudi Hoess's Computerland-Electronic Concepts organisation. That was in 1979. It was rudimentary, but it was a word processor.

The Apple II had no eighty column card then, and the Dan Paymar lower case adaptor was a rare novelty. Sandy's program displayed upper case characters by using inverse, which looked pretty horrible at first but you soon got used to it. The main problem was the narrow forty column screen, which meant you couldn't

display a normal page width (65-75 characters) on the screen. But Sandy's program sold well from the start, basically because there was no competition. What there was consisted mostly of dreadful programs written in BASIC, which wouldn't allow you to put more than 256 characters in a line, or to use any commas. Imagine what they were like. There was a program called "Easywriter", popularly known as "Hardwriter".

Then in March of 1980 the first eighty column card arrived in Australia in Rudi Hoess's briefcase (the same way as the first Visicalc and the first Z-80 card and most other firsts in those days). The Apple began getting the peripherals and software it deserved. The Apple program "Applewriter" arrived, but it was no serious competition for "Sandy's Word Processor". Sandy was constantly improving his program and his documentation, and it was still the best around.

## The "Zardax" story

Meanwhile in Brisbane, Paul Rees of Computerland Brisbane was growing increasingly frustrated with the low quality of U.S. word processing software. He commissioned schoolteacher and micro buff Ian Phillips to write a program they called "Wordmaster II", with a simpler "Wordmaster I" version. This program didn't have the features of Sandy's, but it was easier to use and still much better than any imported program. It amazed everybody that programs by two Australian "backyarders" were better than anything available from large and small American designers. Where was the much-vaunted American ingenuity and know-how?

The American eighty column cards were also of a poor standard. At the end of 1980 the first Australian-designed Vision-80 card

appeared, designed by Ken Thompson and Harry Harper. It had a superior character set and was much easier for a programmer to use. Both Australian word processors were soon working with it, giving the Apple II true wide-screen word processing for the first time.

There were soon some Fair Average Quality programs available from the U.S., including a spate of CP/M programs such as "Wordstar" and "Spellbinder". In Queensland Ian Phillips's "Wordmaster" was upgraded to "Wordmaster II", then "A Word Processor by Computer Solutions" and "Penultimate" before becoming "Zardax" in October 1981. Ian explains the changes of name by the difficulty in finding a name that he could register in Australia, the U.S.A. and the U.K.

With "Zardax" came a vastly improved manual and increased capabilities. At this point it became what it remains to this day: the best all-round word processing program available for the Apple II. "Sandy's Word Processor" has more capabilities but it is more difficult to use — and cheaper; the CP/M programs do a lot but they are too slow, too expensive, and are severely hampered by the limited Apple keyboard; the mass-market American software is just not nearly as good. Anyone wanting a word processing program for the Apple II or Apple //e need not look beyond the two Australian programs.

## Zardax Today

The current version of Zardax is a very impressive piece of work. I use it myself — this article is being written using Zardax. What do I like about it?

Zardax is very easy to learn, much easier than any other word processing program I have ever seen. Its instruction manual is a model of concise writing and easy-to-follow instructions, and its internal structure is simple and elegant. Yet it still has all of the features that I use in a word processing programs.

What do I dislike about Zardax? It should have better text-moving and mailing-list capabilities. That's it.



	Code	Document	Notes		Code	Document	Notes
690	* B1	GLOSSARY					10
OPTIONS:	C6	FRED					3
	* C7	MANUAL	ERRATA				4
Create	* E4	SAMPLE1					3
Print	* E5	SAMPLE2					4
Multipr	* E6	SAMPLE3					3
Vidmulti	* E7	SAMPLE4					2
Retrieve	* F1	SAMPLE5					3
Transfer	* F2	SAMPLE6					3
	* F3	SAMPLE7					2
Delete	* F4	SAMPLE8	NAMES				3
Lock	* F5	SAMPLE9	INTRO				3
UnLock	* F6	SAMPLE10	BUSINESS				3
	* F7	SAMPLE11	PERSONAL				4
Glossary	* G1	SAMPLE12	CLOSE				2
Newdisk							
Index							
Exit							

Zardax Main Menu, using a Vision-80 card.

## Setting Up

When you first boot Zardax, a "SETUP" program automatically runs to allow you to configure your system. On an Apple II it is necessary to make a small modification, supplied with the program, to the Apple keyboard to give you upper and lower case. The SETUP program asks you a number of questions, such as the type of eighty column card (if any), and the type of printer you are using. The program comes with a "Utilities" disk, which contains the drivers for these different peripherals. Virtually everything you could imagine is catered for, with the Utilities disk constantly being upgraded to cover new eighty column cards and new printers. Once the program disk has booted you don't need it again till you reboot, letting you run the program on a single drive system.

This is one of Zardax's strong points. By incorporating drivers for a large range of printers and eighty column cards, Computer Solutions has ensured the widest possible market and the highest degree of customer satisfaction. It's no fun to get an

expensive printer and find that you can't do underlining with it because your word processor doesn't support that printer. You can run SETUP at any time later if your system configuration changes.

After the SETUP program has run, you come into Zardax at the "Main Menu". This displays a number of options, such as Create a new document, Transfer or Retrieve a document, Lock or Delete a document. The names of the documents (text files) on that disk are also displayed on screen, with their sizes and codes. The size is displayed in sectors, a not very useful measurement equal to 256 characters; and the code is a two-character unique identifier, which the program assigns to every text file.

## Editing

To create a document, you just type "C" You need to type only the first letter of each option displayed on the main menu. You are then prompted to enter the name of the document, then "notes", which are optional. I usually type the date in here.

You then immediately enter edit mode, and you are free to start typing your document. It is quite easy to move around and edit your text, though this is not Zardax's strongest point. My main complaint is that to move to the end of a line you must either move to the beginning of the line below then left, or to the beginning of the same line and move repeatedly right. I'd like some sort of "End of Line" function. One recent enhancement of Zardax allows you to move easily ten spaces to the left or right, and that has largely solved this problem. The auto-repeat on the Apple //e is a help, too.

With a 48K Apple II you can create files up to about 13K in size. Zardax creates lower case by using part of the memory as a high resolution screen for the characters. If you have an eighty-column card this memory is not needed, freeing an extra 8K of RAM for your files. Adding a RAM card adds another 10K, giving a maximum of about 31K of user space on an Apple //e or a fully optioned Apple II. And you can easily string small files together for printing purposes.

Zardax text in forty columns.

```
This is an example of how the Zardax screen looks on a conventional Apple II display, without any eighty column card.
Notice the dots . . . between the words, and how nicely formed the lower case characters are.
abcdefghijklmnopqrstuvwxyz
Of course, if you have an Apple //e you still get lower case, but without any penalty of memory usage.
I like Zardax, it's a good word processor.
```

Document Name: FRED

43

### Complaints

My major complaint against Zardax has to do with moving around chunks of text. There is no easy way to do it. You can move single paragraphs reasonably easily, but moving more or less than this involves adding or subtracting carriage returns so that all you want to move becomes one paragraph. Then you fix it up again when you've moved it. With large pieces of text you can first get rid of the rest of the text, then rename your text to be moved under a different name, save it, reload your original text, delete the text you want to move, then insert your renamed file in the spot you want to move to. It is as cumbersome to do as it sounds.

Still, it is a pretty small criticism in the wider picture. I don't need to move great swags of text terribly often. Juggling around and maintaining files is simplicity itself. Formatting of documents is very easy with the inclusion of printer commands in the text. There is an extensive range of formatting options, more than most people will ever use.

All files created by Zardax are standard Apple DOS text files, which means Zardax can be used in conjunction with a range of other programs that use the same format of file, such as some databases and spelling checking programs. This can be awkward, as you have to exit from Zardax and then reboot your disk each time you use the

other program. Zardax has no built-in "Sort" function, so sorting a Zardax file into alphabetic order using another program can be messy.

Zardax does have a built-in mailing list function that works quite well. Mailing lists are created in a standard format, which can then be inserted into letters or onto mailing labels. The only drawbacks are that you cannot sort your mailing list and you must print out mailing labels on single-width labels.

Although it lacks some more complex features, such as a built-in calculator for adding columns, as an all-round word processor Zardax is hard to beat. With its many capabilities it remains very easy to use. Its "visual ergonomics" are good — it looks good and feels good to use. It is well-supported by the manufacturer, another big advantage.

### Sandy's Word Processor

I have been acquainted with this program and its designer since Sandy Donald first displayed it to Rudi Hoess at Computerland in 1979. It was very rough then. The only documentation was on a small text file contained on the program disk, and it was a forty column upper case only display. But it was all there was, and it sold.

Sandy has constantly revised the program since then. At times it seemed like

there was a new version every week or two. His philosophy is one of constant revision, always believing that what he was doing could be better. Sandy's Word Processor is excellent, but it suffers a little from this "organic" approach of Sandy's.

### A Good Program

First, let it be said that Sandy's Word Processor is a more complete program than Zardax. It will do everything that Zardax does, and a good deal more. Once learnt, it is very powerful. It is also cheaper than Zardax (\$200 vs. \$300). What lets it down in comparison to Zardax is its untidier and more cumbersome operating procedures and its documentation. These are problems more to learning a program than to using it: a lot of people I know swear by Sandy's program, and it's easy to see what they like. It has a wealth of features of great interest to programmers. It is more flexible in its use with other programs and the manipulation of data. It is more of a programmer's program.

When you first boot Sandy's you have a similar program to Zardax's "SETUP", which allows you to answer certain questions regarding your system. If you have an Apple II and no eighty column card, Sandy's displays capitals as inverse. This doesn't look as nice as Zardax's hi-res screen but it does give you more memory to work with. Sandy's doesn't support the



Sandy's Word Processor catalog.

same range of eighty-column cards or printers as Zardax, but all the common ones are there. Sandy's also uses a complicated method of code redefinition to drive different printers, which is much more difficult than Zardax's driver files.

Still, Sandy's method, once you've worked it out, gives you truly massive capabilities for controlling your printer. That's the keynote throughout Sandy's: it is more difficult or more untidy to do things, but you have enormous flexibility.

### Edit Mode

Once you have entered Sandy's you are in "File Comand Mode". The "modes" in Sandy's are only slightly less simple than they are in Zardax, and much simpler than those on most word processors. From file command mode you enter "Edit Mode" just by hitting the "Return" key. You are

then ready to start creating a document — you do not give it a name until you are ready to save it.

In edit mode Zardax and Sandy's behave very much the same. Zardax runs words onto the next line, Sandy's "wraps

```
A 011 CONVERT
A 035 MAILER
A 025 LABELLER
A 014 SORT MAIL LIST
A 033 PRGMAILER
A 022 POSTAL GROUP SORT
A 004 PRINTER DEDICATE
```

SANDY'S  
WORD PROCESSOR

COPYRIGHT 1980  
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PTY. LTD.

```
A 011 SAMPLE LETTER
B 038 NEW FEATURES
C 005 TAB EXERCISE
D 004 BEGGING LETTER
A TO D TO SELECT, SPACE TO CONTINUE.
```

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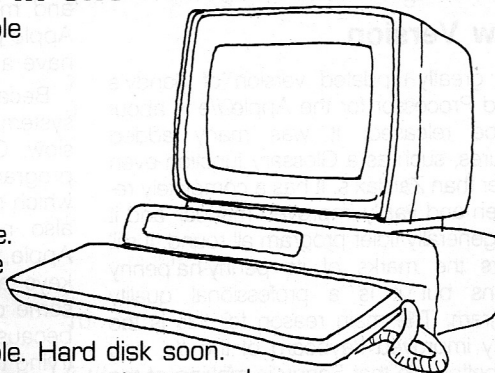
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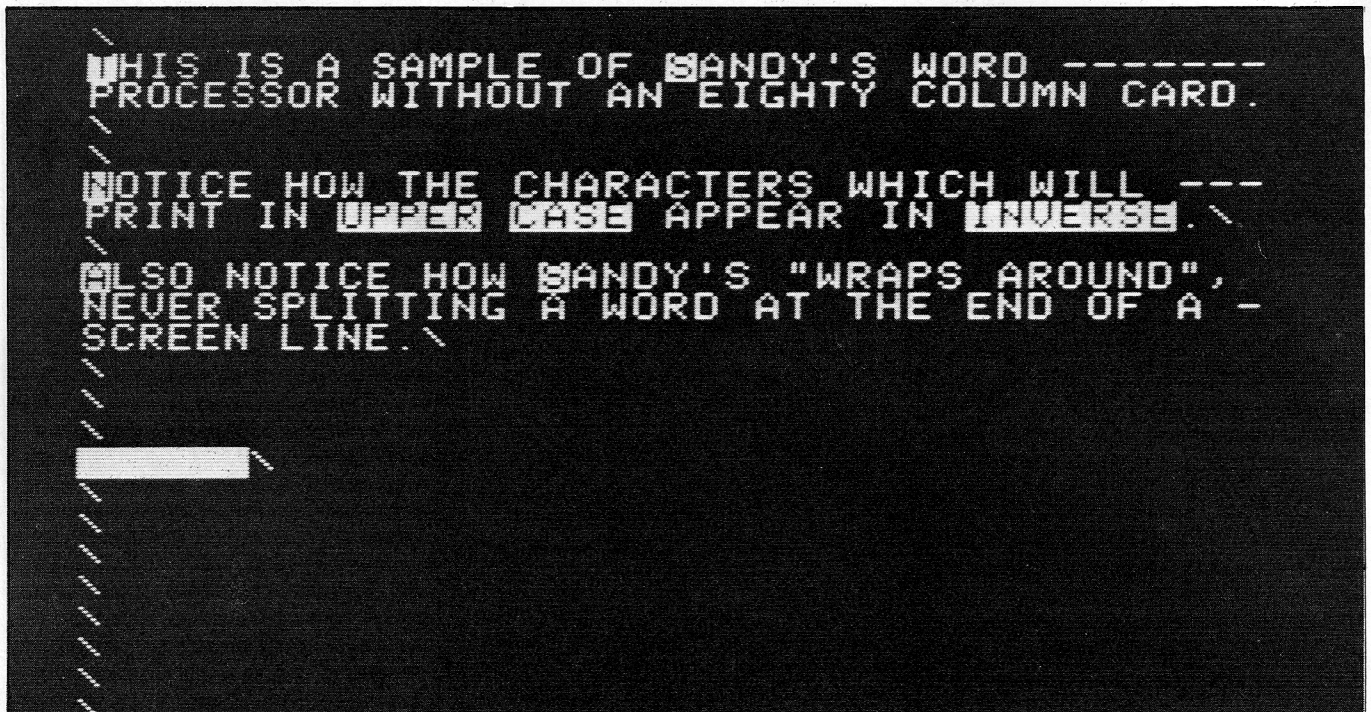
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*Sandy's Word Processor text in forty columns.*

around", never breaking words at the end of screen lines. Both programs insert automatically, where most word processors have a special "Insert" button. After using both types I much prefer the Sandy/Zardax way.

Sandy's really shines when it comes to text manipulation. Moving around chunks of text is very easy with the "Grab" function. The searching and replacing functions are much more powerful than Zardax. One very strong feature is the three additional "Screen Modes" for specialised editing. There is "Word/Paragraph Mode", which allows you to operate on words and paragraphs rather than characters and lines; there is "All Mode", which deletes large slabs of text; and there is the amazing "Upper/Lower Mode", which allows you to change text from upper case to lower case and vice versa.

### Magic Feature

One of the best and most remarkable features of Sandy's is the magical "Undelete capability". If you erase something accidentally and wish to retrieve it, you can "undelete" it by holding down a function key and moving it in the opposite direction from which you deleted.

The program has very powerful mailing list capabilities. You can sort your mailing

list alphabetically and you can print your labels on any width of paper, e.g., three labels across.

Sandy's is especially good for programmers. There are detailed instructions on using the program to edit program files, and very good capabilities for interfacing other programs. You can also edit files larger than those in memory by using a blank disk as "scratch" memory.

### New Version

A greatly updated version of Sandy's Word Processor for the Apple II/e is about to be released. It was many added features, such as a Glossary function even better than Zardax's. It has a completely rewritten and vastly improved manual, and it is a generally tidier program all round. It still bears the marks of its penny-ha'penny origins but it is a professional quality program. The main reason for this is the vastly improved keyboard of the II/e, and the better use that Sandy is making of the Apple II/e's extra 16K of memory.

With these improvements Sandy's Word Processor will rival Zardax as a value for money product. Which you choose depends on what you want to do. If it's office work, or in any commercial

environment, I'd go for Zardax every time. If it's for personal use, it's a toss-up. If you're a programmer, Sandy's is the obvious choice.

### The CP/M Programs

If you put a Z-80 card in your Apple II or II/e, you have access to a large range of CP/M software, including many word processing programs. These programs are generally much more sophisticated and more expensive than conventional Apple programs. Besides their cost, they have a couple of major drawbacks.

Because they use the CP/M operating system, they are slow. The Apple II is a slow CP/M machine. A lot of these programs also access their disk a lot, which slows them even further. They are also not designed specifically for the Apple, which usually means that some keys are different. It's not unusual for some of the functions to be unavailable because of this. It can be a nightmare trying to get some of them to run well on an Apple — most dealers don't even know how to do it.

They are also very expensive. They typically cost about \$500 each, but there are other costs. You must have a Z-80 card and the CP/M operating system. You must have an eighty-column card



and therefore a good quality video screen. And you really must have more than a single disk drive and, if you have an Apple II, a 16K RAM card. If you have to buy any of these just because of the program you want to buy you should look again at the actual cost.

These programs continue to sell, so they must have their good sides. "Spellbinder" and "Wordstar", the most popular ones, are both very good very professionally produced programs that will do just about everything except type your text in for you. They do, in fact, far more than most people ever need, and they do it in an unnecessarily complicated way.

## Wordstar

For a long time Wordstar has had a completely unwarranted reputation as a good word processing program. It has built up this reputation chiefly because it's been around a long time, it runs on lots of

different machines, and it can perform virtually every possible word processing function. On an Apple it is very very slow, and compared to Zardax it is virtually impossible to learn. It has an instruction manual that refers to keys the Apple doesn't have, and a bulky and completely daunting reference volume.

You MUST have a two-drive system to run Wordstar, as the program disk must remain resident at all times. This disk is constantly accessed, as many Wordstar functions are stored on disk rather than in memory. There are different levels of "Help" menu on the screen, which is a necessity when you are learning. As you learn more, you can erase them.

Wordstar does everything. It also has other packages available with it, such as Datastar, Spellstar, and Supersort, which allow an integrated system. If you've got to go this far then you probably should have a bigger machine than the Apple to start with. If you've already got an Apple, it's definitely time to get a hard disk.

## Spellbinder

One of the main reasons Wordstar is so bad is that Spellbinder is so good — it's a question of comparisons. Why get Wordstar when you can get Spellbinder, which is a better program in all departments.

Although Spellbinder has all the features of Wordstar, it has only rarely-used functions on disk, which means it is much quicker. It is also much easier to learn and to use. Its strongest feature is its "Macro" capability, which allows you to write special functions to perform specialised tasks. Some macros have already been written and are supplied on disk, and allow you to do such things as a two-column print, and mailing list sort.

There is a very powerful sorting function. Any list, e.g., names and addresses, can include a code line that contains certain information about that item in a list. Fourteen different categories (A-N) can have any one of 10,000 numeric attributes, and you can create sub-lists from all of the items having any combination of coding. Using this sort function with the macros can give you real database power combined with your word processor, which is particularly useful with the maintenance of certain types of mailing lists.

So, within the limits of CP/M word processors, Spellbinder is the best available on the Apple. But before you buy a word processing program, ask yourself if you need all that extra power, because you pay for it in money and in ease of use.

## The Rest

There are hundreds of word processing programs available for the Apple II nowadays. There is Apple's own "Applewriter II", which has never really reached professional standards. There is the new "Bank Street Writer", very popular in the States because of its use in many packages, and promoted as a "Home" word processor. There are a few programs based on the Pascal Editor, including a reasonable one from 6S in Geelong, Victoria. There is "Screenwriter II", which gives you seventy ill-formed columns without an eighty column card. Again, it's a question of choice. Why get any of these when you can get Zardax or Sandy's or Spellbinder? □

## CAPABILITIES

FUNCTION	ZARDAX	SANDY'S	SPELLBINDER	WORDSTAR
Operating Sytem	DOS	DOS	CP/M	CP/M
Price (RRP ex tax)	\$295	\$195	\$650	\$595
Documentation	8	9 (/e) 3 (ll)	6	5
Editing				
— ease	8	8	6	5
— capabilities	7	9	9	9
File Manipulation				
— ease	9	7	7	6
— capabilities	8	8	9	9
Formatting				
— ease	9	7	7	5
— capabilities	7	8	8	8
Printer support				
— ease	10	4	7	7
— capabilities	8	10	8	8
Ease of learning	10	8 (/e) 6 (ll)	7	3
Interfacing with other programs	4	8	9	9
Visual ergonomics	9	5	7	7
Manufacturer's support	10	10	2	2

## KNOW YOUR APPLE

*Felix Macri's name is well-known to many people in the Australian Apple scene. He has been closely associated with the Apple II since its introduction to this country, originally working as a technician with Rudi Hoess at Electronic Concepts. More recently he has formed his own Apple II repair business on Sydney's North Shore, and has begun writing a book on how to repair, maintain and interface Apple II computers. Excerpts from this forthcoming book will appear in each issue of "The Australian Apple Review", building up into a comprehensive guide to the hardware operations of the Apple II. You too can "Know Your Apple".*

Much has been written in books, magazines, papers and technical journals in recent years about the microcomputer revolution. Leading this revolution has been the Apple II, by far the most powerful and popular micro ever placed at the disposal of the masses. Even today some newer micros, with six years of technological advance, still do not match the versatility of the Apple II. No doubt this will change one sad day.

The story has it that two engineers named Steve Wozniak and Steve Jobs, with experience in calculator design at Hewlett-Packard and video game design at Atari, designed a completely new microcomputer. It was the first microprocessor system on the market to integrate the display generation circuitry, microprocessor, memory, keyboard interface and power supply on the same circuit board. Wozniak was unable to convince management at Hewlett-Packard of its full potential as a personal computer. (Hewlett-Packard have of course now introduced their own personal computer).

### Going it alone

Jobs and Wozniak decided to go it alone, despite the strong movement for the hobby standard S-100 type machines. They built their first Apple computer, the Apple I. They assembled it in Job's garage and sold a small number to local hobbyists and retail outlets, at a price under \$700. Wozniak then designed the Apple II in late 1976. It was at about this time that three other gentlemen, namely, Rod Holt, Mike Scott and Mike Markkula teamed together with Wozniak and Jobs to form Apple Computer Inc. In April 1977 they introduced the Apple II at the First West Computer Fair, and in June that year they began shipping them to customers.

In 1977 microcomputers consisted of heavy square sheet metal boxes, full of rows of lights and switches. To get a working system you needed to buy seven or eight additional circuit boards which would plug into a motherboard fitted inside the metal box. To communicate with these devices

you needed a video terminal with keyboard or an old-style surplus teletype machine. As you can imagine, these devices required a fair degree of expertise to get them working. They were also very expensive.

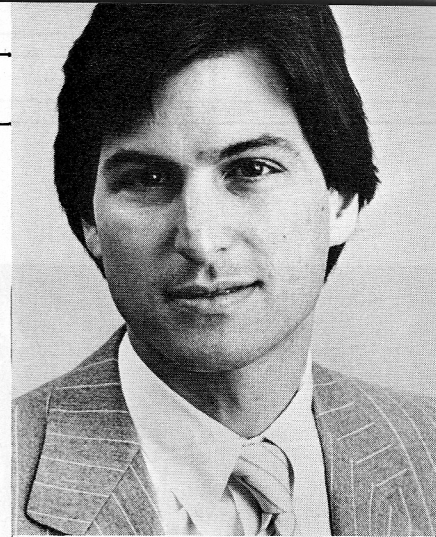
In contrast, Steve Wozniak designed a fully programmable microcomputer with integrated keyboard, colour video display capability, high resolution graphics, integer BASIC language and a motherboard with provision for eight expansion slots. The expansion slots meant that the machine's capabilities could easily be expanded, by the inclusion of extra cards in the slots. To give you an example of the quantum leap in design that Wozniak achieved, consider that all of the Apple II features are contained in 62 integrated circuits (ICs, or "chips"), while to give a high resolution colour graphics capability to your metal box required over 100 such chips!

Such was Wozniak's genius that in just one week of pure artistry he designed the Apple II disk controller card, using only eight chips. Most disk controller boards still require 30 to 60 chips. However most people would not consider this artistic, or even a tremendous advance in technology — they would not even understand it.

### Computer Fundamentals

The structure of a computer is illustrated in Fig. 1. It consists of five fundamental units:

#### 1. Control Unit (CU)



Steven Jobs, founder of Apple.

#### 2. Arithmetic Logic Unit (ALU)

#### 3. Memory

#### 4. Input

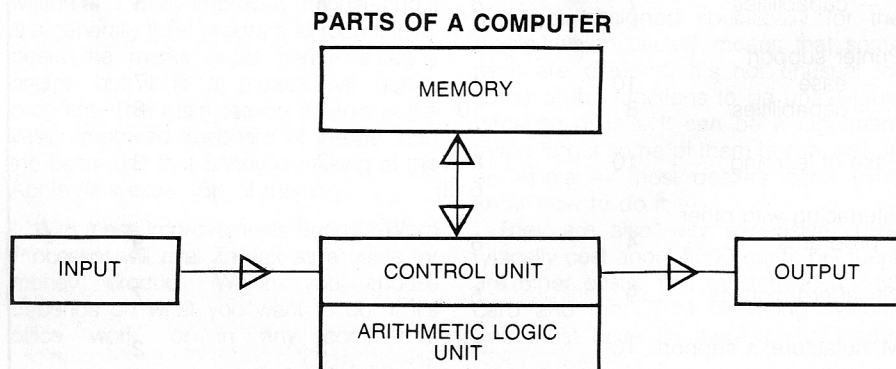
#### 5. Output

The Control and Arithmetic Logic Units are usually included together and called the Central Processing Unit (CPU).

The function of the Control Unit is to put into sequence the operation of the computer. In particular the CU will fetch, decode and execute successive instructions stored in the Memory unit. It will generate all the control signals needed to synchronise the relevant operations and the flow of data to and from the ALU. It will interpret all the signals presented to it on the control bus (A "bus" can be thought of as a channel along which data flows). It will manage the flow of information onto the address and data buses.

The function of the Arithmetic Logic Unit is to perform arithmetic and logic operations on data input to it. The arithmetic operations performed by the ALU include addition and subtraction, while the logical operations include logical AND, logical OR, logical EOR and bit shift operations which are the basis of the computer's operations.

The function of the Memory unit is to store instructions and data. There are several types of memories used with computers, classified as volatile or non-volatile. With volatile memories the contents of the memory are lost when the power is removed, with non volatile memories the





contents of the memory remain even if the power is removed. Of the memory devices used today semiconductor types (chips) predominate, due mainly to their high yields and low cost per bit. The main semiconductor types used are loosely called RAM (Random Access Memory) and ROM (Read Only Memory). With RAM, information may be written into the cells of the memory and then read back at a later stage. This is also termed Read/Write memory (R/W). With ROM, information can be read only, once data has been written to its memory cells.

The function of the Input unit is to supply data to the ALU. In a typical computer this will usually be a keyboard. Meter-type devices such as temperature or pressure transducers and gas detectors can also be used.

The function of the Output unit is to display data from the ALU. In a typical computer this will usually be a video display terminal, or screen. Other devices that can be used are light emitting diodes (LEDs), liquid crystal displays (LCDs) and printers.

## Microprocessors and Microcomputers

In the world of microcomputing, the terms microprocessor, microcomputer and microcomputer system are sometimes used interchangeably. However, each term does have a particular meaning.

A microprocessor is a central processing unit (CPU) formed onto a single integrated circuit. A typical example is the Apple II's 6502 microprocessor.

A microcomputer is normally a collection of integrated circuits which combines a microprocessor (CPU), RAM and/or ROM memory and input/output (I/O). Notice how similar this is to the computer described above. A typical example is the Apple II motherboard.

A microcomputer system usually includes a single board microcomputer, input and output facilities, additional memory and power supply all, housed inside a single enclosure. The current vogue is to include a video display terminal, a keyboard, and floppy disk drives for additional external storage. A typical example is the Apple II microcomputer.

## Peripheral Devices

Peripheral devices used with microcomputers are usually used for the input and output of data in a form which makes sense to humans. The little microprocessor can only talk in binary

digits and we humans can only talk humanoid, so there needs to be some translation process between the two. Peripheral devices can be classified into three main types, according to their mode of operation:

**1. Human Readable Devices:** Allow the human to interact with the microcomputer. Prime examples are visual display terminals with or without a keyboard, printers (either receive only or with a keyboard), graphics digitizers, speech synthesizers and other speech recognition devices. The Apple II has been connected to almost all of these devices, largely because manufacturers have adhered to Apple's interface standards.

**2. Control Devices:** Implement complex functions on a few integrated chips, such as digital to analog converters. A typical control device is an Arithmetic Processing Unit (APU), which increases the mathematical capabilities of the microprocessor. Another is the serial interface chip, such as the 6821. This device has two 8 bit bidirectional I/O ports with data direction control on each bit.

**3. Mass Storage Devices:** Used to store medium to large amounts of instructions or data external to the main memory of the microcomputer. They are usually much slower in operation than ROM or RAM but this is more than made up for in their relative cheapness and ease of use. Data can be stored "offline" on tape or disk, vastly increasing the storage capabilities of the computer. In the early days of microcomputing, around 1977, the most popular mass storage device was the audio cassette recorder. Steve Wozniak included this feature as standard on the Apple II. It worked very well, but it was inconvenient to have to rewind a 30 minute tape just to find your latest copy of Stellar Invaders. So the Apple disk drive was invented. The recording head moved across the complete surface of the floppy disk, which meant a similar type of random access capability as the RAM (though much slower). It was also non-volatile.

NEXT ISSUE: Part 2 of "Know Your Apple" — A complete description of the Apple II's hardware. □

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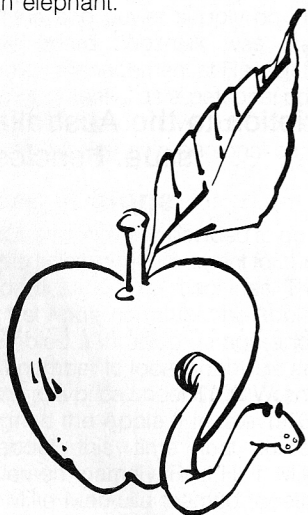
#### The Australian Apple Review

Top Rear, 4 Carrington Rd,  
Randwick, NSW 2031.

**A**s all astute readers will have spotted by now, this magazine is not an official Apple organ. We get on very well with the people at Apple, because they know we are Apple enthusiasts and that the magazine may very well cause readers to buy an Apple — adding to the 20,000 or so Apple users that already exist in Australia. But because we love Apples — and we have bought nine altogether which we use with great delight — we are not blind to the faults of the Apple as a machine or to Apple as an organisation.

Elsewhere in this issue is an article showing what a monumental bog-up Apple Inc. made of handling the forgeries being manufactured in Taiwan. This is not the only area where they are something less than perfect.

The streets of Cupertino are lined with enraged and frustrated programmers who have written magnificent programs to be published by Apple, when and if Apple gets its software marketing act together. These mute inglorious Miltons of microcomputers are understandably miffed, as the period of gestation for a program once it enters the Apple machine is considerably longer than that of an elephant.



Our major complaint is that Apple take so long to provide what everyone wants and refuses to discuss intelligently and intelligibly exactly what they are doing.

Tell it not in Gath and murmur it not in the streets of Askelon, but what we want on this magazine is a portable Apple and we want it NOW. And as it has not made an appearance we have gone and bought a Tandy (shock, horror) TRS-80

Model 100 which interfaces with our Apples as to the manner born, has a built-in word-processing program, fits into our brief case and retains what we have written in its capacious memory. Epson have done something similar.

Where, we ask plaintively, is the Apple equivalent?

One presumes that the Mackintosh, when and if it appears, may fulfil this role, but then again it may not. It may be something totally different. Apple are playing their cards close to their collective corporate chests and we will know the full story when it is announced. Which for us at least is a bit late because we have already had to go elsewhere to satisfy an obvious need.

Look then at the example of the Lisa. We know it exists because Rudi Hoess has one in his store in Sydney where the privileged are allowed to play with the mouse. We know it exists because we saw it demonstrated in Hong Kong to a gaggle of potential illicit manufacturers. We know it exists because we saw Apple demonstrate it in Sydney in February.

We know that orders are being filled because it says so in the newspapers. And yet this machine, which is by any standards a quantum leap forward in microcomputing, is being released to the public under what can only be termed the Official Secrets Act.

The Lisa is so innovative that it will have to be marketed and marketed hard to rack up the sales it undoubtedly deserves. Selling will be a hands-on process because you can be sure that there are very few except for Apple maniacs like ourselves who will fork out big bucks unless they can visibly see a return for their investment.

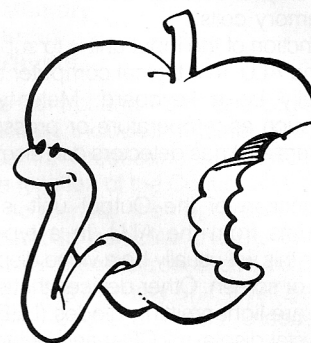
The world has become more sophisticated since people beat a path to the door because someone built a better mouse-trap. And the mousetraps get better each day.

In this matter Apple Inc. have managed to make ASIO appear the blabbermouths we always knew they really were.

We will not at this stage go into the sad and unpublished history of the Apple III of which — according to sordid rumour which is ever a lying jade — the total first importation into Australia had to be returned to Cupertino to be debugged. Nor will we bother to try to follow the intricate Byzantine involvement of Delta

and Neville McKay in Hong Kong over who had control over distribution in Australia. (Was he really the official distributor while he was still chief engineer on a Cathay Pacific Boeing 707, we ask in wonder?).

What we would like to do is just keep reasonably up-to-date in the world of Apple. We know they have a public relations company representing them — we know because we have spoken to them on the telephone.



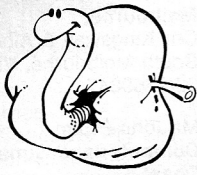
### We are Japanese if you please

Keen readers of American journals of microcomputing would have discerned advertising for an Apple Dot Matrix printer which stated boldly that this was not a "Samurai" printer or, it suggested, any other printer from the Land of the Rising Sun. And yet close examination of the Apple printer by our admittedly ancient and jaundiced eye could find no visible difference between this new machine (Apple to the core) and the C.Itoh 8510 which, beyond the shadow of a Royal Commission, comes from the Land of the Rising Sun. Indeed, the plastic gizmo at the back that holds the paper down says in large letters "Made in Japan".

There seem to be three possibilities. 1. Apple Inc. had not told its advertising agency that the machine was badge engineering on a Japanese printer. 2. Apple Inc. did not realise that C. Itoh was one of the largest Japanese firms. 3. There was a deliberate attempt to mislead the public.

Bearing in mind what this worm had to say in the previous paragraph we will lay odds that it was the first possibility. We can easily envisage a scene where the creative head of the advertising agency could be seen wandering around tearing his hair and crying that nobody ever told him anything.





## Melbourne miscreants

This worm refuses to take sides in the "fake" versus "real" Apple controversy. Although a number of self-appointed legal experts in the Australian computer trade would have you believe that the matter is cut and dried and that they are fireproof. "Unknowing of their fate the little children play".

What this worm will take sides on is the matter of ordinary infringement of copyright. A Melbourne wholesaler proudly displayed books which had been reprinted in Taiwan, a country not known for its stringent adherence to the laws of

copyright. He asked this worm's legal opinion as to what would happen when he started selling them. The simple answer is that he will most probably go to jail.

There are arguments as to whether the copyright laws as they stand protect software. And I am not buying into the argument as to whether the "fake" Apples are "passing off" within the meaning of the act. But I know that the copyright law as it applies to books is clear and straightforward, and to breach it is a Commonwealth offence. Anyone distributing books which have been reprinted in Taiwan should let us know the address of the nearest prison so that we will know where to send sandwiches.

Interestingly, this distributor was quite hot under the collar because one of his retailers had been selling his goods at what the distributor considered too high a profit. Now there is a moral in all that. What it is quite escapes me.

## Speed of programming

It is not generally known that a vast amount of the program writing in the world is done by Indians and, to a lesser extent, Filipinos. The end product may have a splendid Anglo-Saxon name on the package but the hack work will undoubtedly have been done abroad, for reasons of economy and speed.

These two nations produce great mathematicians, great chess players and great program writers. Precisely why this should be escapes me.

I once introduced a Filipina (that's the female form) to an Apple computer relatively early one Saturday morning and taught her the rudiments of BASIC. The next day she produced a simple accountancy program which was, it is true, limited in its scope. But it worked. And it had no bugs. Show me an Australian with that sort of instant capability. □

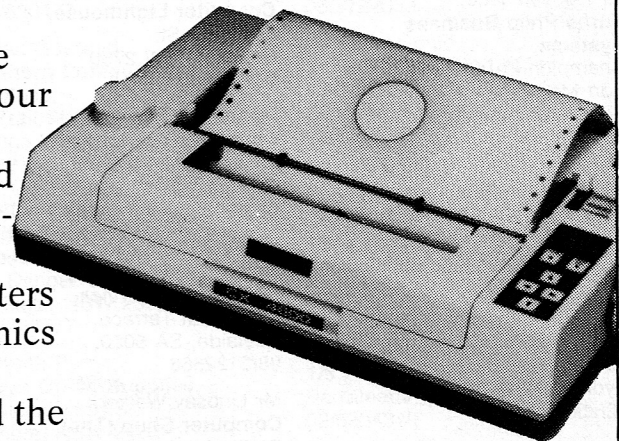
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# APPLE CASES

A series of studies in the application of Apples to business and other serious stuff.

- CASE 1 -

## The importance of a good business card.

**THE SITUATION:** You have an ordinary Apple II or Apple IIe. You don't have megabucks to spend. You need extraordinary performance from word processing, spreadsheets, data bases, communications and your other applications programs.

**QUESTION:** How will a new business card help?

**ANSWER:** Choose your business card from the VISION-80 family of products.

### 80 Column Text Card

A sophisticated, easy to use 80 column card rated No. 1 by reviewers around the world.

#### 80 Column Display:

Largest available 9 x 10 dot matrix, giving a superb set of 128 upper & lower case characters, & a crisp set of line/block graphics, with software switching between 40 and 80 column screens.

#### Compatibility:

Fully compatible with Applesoft BASIC, PASCAL, MICROSOFT CP/M, FORTRAN and ASSEMBLER.  
Fully compatible with most quality word processing, spreadsheet, data base and applications programs.

#### Communications:

Full smart terminal emulation, file transfer & save, and screen print facilities.

#### Installation:

Installed in seconds into the standard Apple II or IIe, with no hardware or cabling changes for normal Apple operation.

All this and a set of powerful utility programs.

**NOW ONLY  
\$295.00**

### VISION-128 128K Memory Expansion Card

A powerful RAM card which increases the available memory space of your Apple II or IIe from 64K to an incredible 192K.

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Fully compatible with all Apple software, and 'transparent' to the user.

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Provides all the extra bytes for storing large VisiCalc models in RAM.

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Utility programs can automatically activate the card when more RAM memory is required.

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Automatic VisiCalc preboot procedures for both the Apple II & Apple IIe, utilizing VISION-80 VISION-128K

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#### VISION-AWII Apple Writer II PREBOOT DISK

Automatic APPLE WRITER II preboot procedures for both the Apple II & Apple IIe

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#### VISION-128 UTIL Utility Program Disk

A large variety of utilities for the expanded 192K memory, including the VISION-DRIVE diskette emulator.

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**IMAGINEERING**

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## THE TOP TEN

*This month's most popular Apple programs.*

*Compiled with the help of Imagineering.*

## Entertainment

### 1. Frogger

It's a long way home, Mr Frogger, but stay on your webbed toes and you'll make it. Cross that highway, hitch a ride across that river, watch that steep riverbank — and you're safe at last.

### 2. Choplifter

Fly your chopper into the Bungeling Empire to rescue 64 hostages, avoiding interceptor jets, homing mines, and tanks. Challenging, realistic, playful.

### 3. Wizardry

The archetypal "Dungeons and Dragons" adventure game, complex yet simple to play. Comes with scenario #1, "The Maze of the Mad Overlord".

### 4. Castle Wolfenstein

A novel adventure set in a "Colditz" type castle in WWII. Blow the Germans away!

### 5. The Temple of Apshai

A role-playing adventure game that catapults you into a world of magic and monsters. Test your wit and your sword-arm against the death-grip mandibles of the giant mantis.

## Business

### 1. Home Accountant

Balance your chequebook and keep track of you income and expenditure. Also suitable for a small business.

### 2. Visicalc

The perennial favourite, the spreadsheet program that started it all. Not the most flexible, but still the easiest to learn.

### 3. PFS

A very good little data base program for most personal and low-volume applications. Extremely easy to learn to use.

### 4. Zardax

Australia's own, the best all-round Word Processing program for the Apple II. Reviewed in this issue.

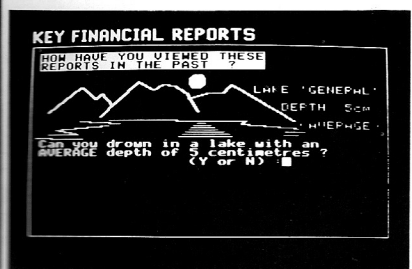
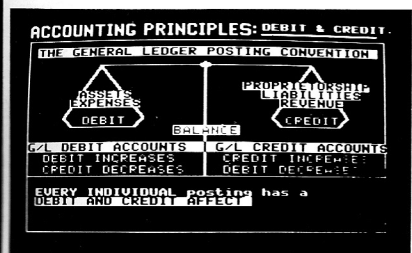
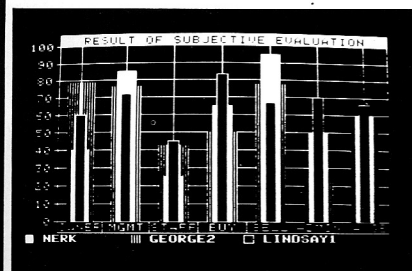
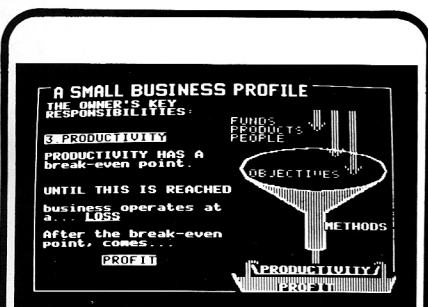
### 5. Bank Street Writer

The family Word Processor which is taking America by storm. On-disk tutorial, suitable for the Apple II or IIe. □



# If you really want to know — ASK!

Small business needs a key to the accounting scene.



What advice would you give these people?

#### EXAMPLE 1

18 months ago Mr L. was worried by declining custom due to a large department store nearby. He decided to fight back by reducing profit margins, while increasing floor space, merchandising lines, his advertising. A 'bulk store' approach. All these changes required extra capital and extra effort. He now has his first full twelve months trading results.

Is this the BETTER way to operate? PROFIT is only part of the answer.

#### EXAMPLE 2

Mr C. started a business 36 months ago with \$10,000 capital. From a slow start, things appear to be heading in a positive direction, with steady sales increase. However, more capital is needed to fund charge customers and increase merchandise inventory.

Does PERFORMANCE justify this? Is the business capable of servicing these added overheads?

A.S.K.  
and get the answers!

#### STAGE 1 — INITIAL EVALUATION

ASK! provides a SUBJECTIVE EVALUATION tool — a questionnaire. The surveyed results are computed and graphically illustrated. The program will then advise you on what it believes your apparent strengths and weaknesses are. Interesting stuff!

STAGE 2 — REVIEW OF ACCOUNTING PRINCIPLES  
Numerous illustrations and spot tests are employed to ensure that each aspect is kept understandable and interesting.

#### STAGE 3 — RETURN ON INVESTMENT

Let the 6S ROI PYRAMID unravel the complex relationship between INCOME EARNING and ASSET MANAGEMENT. A fascinating analysis that helps you make a range of professional accounting adjustments to the figures to show the REAL PICTURE.

#### STAGE 4 — IN-DEPTH TREND ANALYSIS

A data-base is created. From this database a range of analyses is performed.

- OPERATING PERFORMANCE
- FINANCIAL POSITION: SHORT, MEDIUM, LONG TERMS, LIQUIDITY, PROFITABILITY
- FINANCIAL MANAGEMENT: ASSET TURNOVER, ASSET DEPLOYMENT
- BUDGETING & LIQUIDITY FORECASTS

A user of ASK can not only see where he has been more clearly, but also is able to plan with confidence where he is going!

This is a program for Apple II and Apple IIe computers.

All inclusive cost for the six diskette set, manual and protective folder — \$295.



6S BUSINESS ADVISORY PTY LTD  
P.O. BOX 1220,  
GEELONG, VIC. 3220.  
PHONE: (052) 22 4311.

#### RETURN ON INVESTMENT — ROI

Consider FIXED ASSETS:  
For this exercise, use the following table to make value adjustments to your FIXED ASSET RECORD (or REGISTER)

ORIGINAL PURCHASE PRICE	ESTIMATED REPLACEMENT COST	CURRENT BOOK VALUE	MONTHS IN USE
0	0	0	0

OK? (Y or N) ■

#### OPERATING PERFORMANCE

OPERATING EXPENSES ON SALES

VALUES as a %

4	16	6667
10	18	26,667
1	44	9833
1	31	844

4 = FORECAST FOR NEXT PERIOD  
1 = OLDEST PERIOD

OPERATING EXPENSES ARE DISPROPORTIONALLY INCREASING.  
Unless you can see ways to INCREASE GROSS PROFIT on sales, your overhead costs must be REDUCED to give ROI a chance

#### FINANCIAL MANAGEMENT

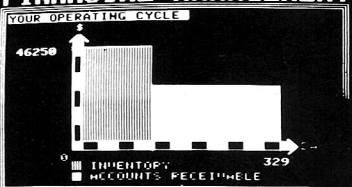


Which graph for explanation? (1-4) ■

#### FINANCIAL POSITION



#### FINANCIAL MANAGEMENT



# Introducing a Teacher You Can Give to Your Apple.



For the first time in Australia, quality educational courseware is available for your Apple IIE or your Apple II Plus. Control Data PLATO® is proud to announce that from December 1st, new lessons from the vast PLATO computer based education library will be available for your Apple micro.

Control Data PLATO computer-based education, recognised as a world leader in educational software, is a highly interactive system of self-paced, one-to-one instruction. Developed over 20 years, it has been thoroughly tested and proven in business, industry, and the academic community. PLATO lessons are designed and programmed to motivate and direct students as well as helping them develop a sense of accomplishment and personal progress.

For example, the course titled Computer Literacy provides the foundation for simple programming as well as giving a brief introduction to the uses of computers in today's society. There are lessons in building

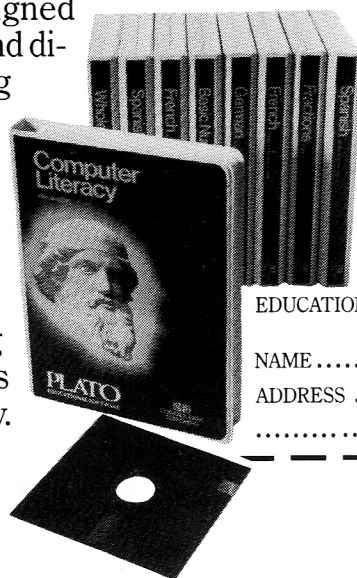
vocabulary in French, German and Spanish as well as lessons in Physics,

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Today, more than ever before, all members of society need to learn. PLATO computer-based education is designed and paced for the individual. This means easier learning with infinite patience and personalization.

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